

WESTERN INDUSTRY



• Salt is the magnet determining the location of many chemical industries: Storage pile on the shores of San Francisco Bay

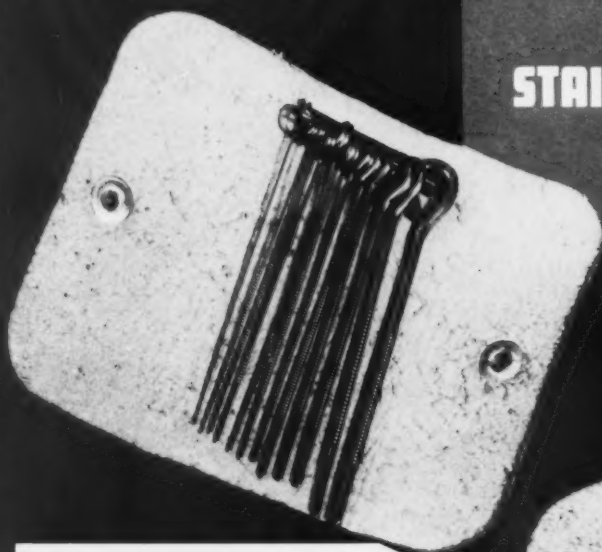
Five Cents

VOLUME XI

NUMBER 3

March, 1946

Keep welding and cutting tips clean with STAINLESS STEEL WYPO TIP CLEANERS

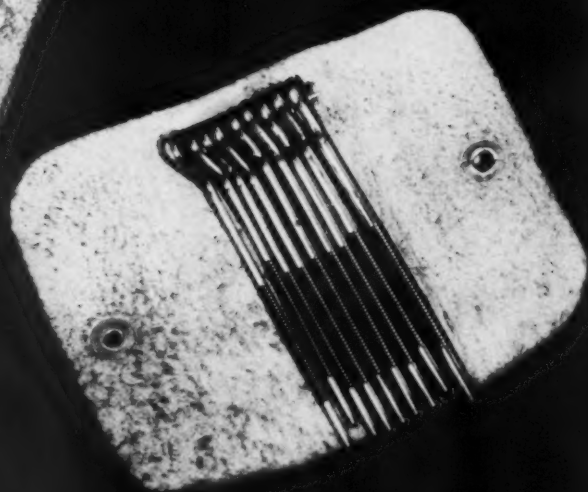


Wypo Tip Cleaner Set No. 1 ▲

contains 12 tip cleaners covering drill sizes 75 to 49. For VICTOR (or equivalent) welding tip sizes 000 to 4; VICTOR (or equivalent) cutting tip preheating ports tip sizes 000 to 10 and oxygen jets of tip sizes from 000 to 3. Per set, in leather holder \$2.40

Wypo Tip Cleaner Set No. 2 ►

contains 9 tip cleaners covering drill sizes 48 to 30. For VICTOR (or equivalent) welding tip sizes 5 to 7 and VICTOR (or equivalent) cutting tip oxygen jets of tip sizes 4 to 7. Per set, in leather holder \$1.80



Every time you save but one cutting tip you have paid for a complete set of WYPO tip cleaners . . . and here are but a few of the reasons why WYPO tip cleaners are better:

1. They don't enlarge or taper original drill size of tip port.
2. They can't score or scratch the inner wall surfaces of tip ports.
3. They are easily applied thus inviting operators to keep tips in good working order.
4. They save man hours as well as gases because a clean tip performs economically and swiftly.

**Order your
WYPO Tip Cleaner Set TODAY**

VICTOR

Ad 144

VICTOR EQUIPMENT COMPANY,
844 Folsom Street,
San Francisco 7, California.

Gentlemen:

Please ship me today the following WYPO tip cleaner sets:

Quantity to be shipped	Wypo Tip Cleaner Set Number	Price per Set	Total
1	1	\$2.40	\$
2	2	\$1.80	\$

Please add California Sales Tax of 2½% if shipped to California address.
Charge my (our) account Mail COD Check enclosed

Ship to

Name of Company

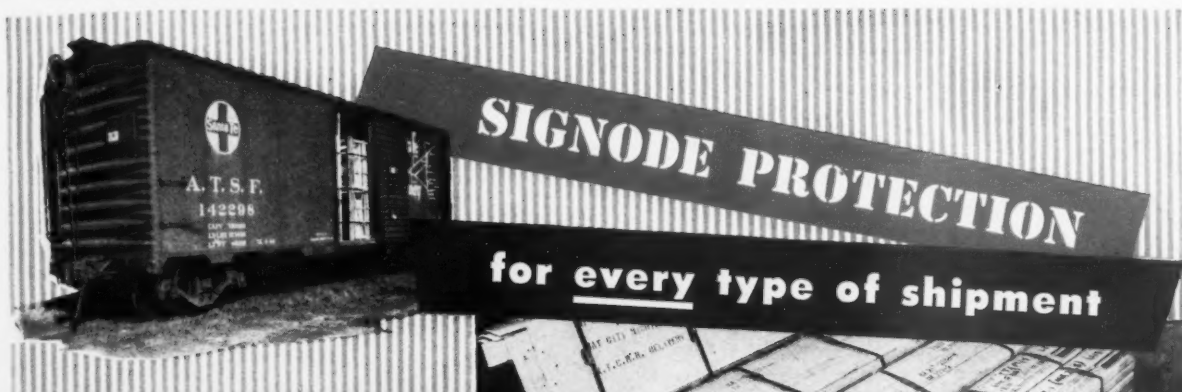
Attention Mr.

Street

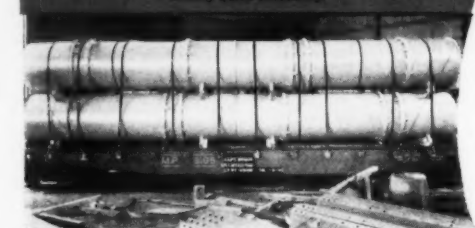
City

Zone

State



CRATED GAS RANGES—A Well Anchored load. The gates are secured by the anchored strap thus permitting quick unloading.



STEEL TANKS—This load is secured with the American Standard Loading Rules Manual for Open Top Cars.



ROLLED ROOFING AND ASPHALT SHINGLES

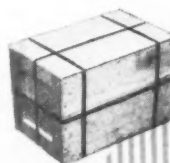


BUNDLED ANGLE IRON AND SQUARES—Completely packaged by use of Signode Steel Strapping.

Almost every product can be shipped with greater security and economy by using Signode Steel Strapping . . . There's an individual application to fit shipments—from small, light packages to large heavy units and carloads. The Signode Method saves by cutting shipping room costs, minimizing damage in transit and often reduces freight costs.

Ask for suggestions in terms of your own packing and stowing problems . . . A Signode engineer will gladly help you. Write today!

WOODEN BOXES
Four-way Signode Steel Strapped Wood Box affords extreme serviceability at low overall cost.



SIGNODE
STEEL STRAPPING

SIGNODE STEEL STRAPPING CO.

GENERAL OFFICES: 2615 N. Western Ave., Chicago 47, Ill.;
441 Seaton, Los Angeles 13, California; 1021 - 4th Avenue S.,
Seattle 4, Wash.; 458 Bryant St., San Francisco 7, California

MEMO

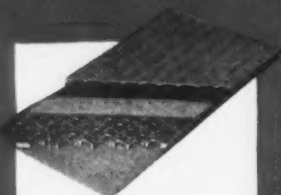
*Why did
truck #7 make
only 10 trips
yesterday?*

MATERIALS
HANDLING SUPERVISOR



HOW EFFICIENT IS YOUR

Battery Power?



KATHANODE UNIT

The positive plate assembly of Gould Kathanode includes grid, Black Oxide active material, spun-glass mats and Unit-Seal envelop. Separators are of Dura-por porous rubber.



Gould Kathanode power is sustained power. It assures speedy and economical electric truck operation even during the latter stages of Kathanode's long service life.

The main reason for the sustained power of Gould Kathanode is the unusual protection of the power-producing positive plates. They have spun-glass mats in contact with each face, which are held in place by the specially designed Unit-Seal envelop. Solid at the edges and with open ends this envelop allows spent active material to filter out. It cannot lodge or tree. Internal short circuits, a common cause of power losses, are minimized in Kathanode.

Keep your electric trucks running with Kathanode. Write Dept. 83 for Catalog 100 on Gould Kathanode Glassklad Batteries for Industrial Truck and Tractor Service.

GOULD STORAGE BATTERY
CORPORATION, Dept. 83, N. Y.

Dallas • Atlanta • Boston • Chicago
Dallas • Denver • Liverpool • Los
Angeles • North Bergen • Rock Island
Saint Paul • Salem • St. Louis City
Tomball



EDITORIAL COMMENT

An Out-Lived Function

HARSH critics of OPA would get a more temperate, if not sympathetic, viewpoint toward the work of this much-belabored war agency if they could listen to such officials as Frank Sloss, OPA regional price executive at San Francisco. Even if we do not agree with his views, they are worth repeating.

In a recent talk he said, first of all, that OPA executives are not seeking to perpetuate their jobs and consider price control a purely temporary measure that will no longer be necessary when supply begins to catch up with demand.

Second, he asserted that in the light of past experience price inflation causes hoarding, not selling, and that the choice lies between temporary shortages and inconveniences resulting from price control on the one hand, or inflation and business crash on the other. Recent experience with lifting controls on fresh oranges showed that the weighted average of prices moved up and this indicated what would happen generally with the ending of restrictions.

Much of the present delay in getting industrial operations under way is due, in his opinion, to material shortages and strikes, rather than to price control. Furthermore, OPA provides incentive increases to enlarge the supply.

As *Western Industry* sees it, there unquestionably would be many price increases and it might be necessary to keep rents under control in view of the critical shortage, but a comparison with the 1920-1921 runaway inflation period is not necessarily reliable. We have had a lot of experience since then, and conservative tendencies would be much more prevalent.

The worst criticism of OPA is that it cannot function rapidly enough to meet the demands of industry, despite the efforts and intentions of its staff. The experience of Gate-Way Manufacturing Co. of Los Angeles, reported on page 35 of this issue, in spending five months trying to get a price decision on door knobs out of OPA, just about tells the story. A handful of officials in Washington and the regional offices cannot keep up with the urge of industry to go forward and capitalize on favorable situations.

An Additional Avenue of Contact

LOOKING through the many company magazines that find their way to our desk, it seems surprising to find so little effort made to develop discussions on industrial relations or to carry messages from top management to the employees.

When the Kaiser shipyard newspapers were in the height of their glory, weekly interviews with workers on miscellaneous topics were published which gave an interesting cross-section of opinion, although industrial relations seemed to be carefully avoided. It is easily understandable that management is reluctant to open the door to critical statements from employees, but it seems that judicious selection would permit a fairly free expression of opinion and enable the employees to realize that management is not indifferent to their ideas, suggestions or complaints.

President Edmund Price of Solar Aircraft Company, San Diego, is setting an excellent example in the way of a monthly message to his employees published in *The Solar Blast*. Some of these messages set forth his economic views, while others are homely observations on little incidents that come to his notice in the plant. They serve to establish a personal relationship that undoubtedly is a great help when difficult situations come up.

WESTERN INDUSTRY

CONTENTS FOR MARCH, 1946

Editorial Comment	5
In Our Mail Box	7
Field Book	7
RFC Calls for Geneva Bids (cartoon)	8
Statistical Quality Control Gains Wider Use in the West	33-35
Aluminum—A National Game of Checkers	35
Arbitrate—To Avoid Strikes	36-37
Westerners Have a Stake in Prosperity of the Philippines	38-39
Pallet Pool Formation Slated as Big Business	40-41
Washington Correspondence	42-44
Floors Take a Beating . . . A Tough Maintenance Problem	45
Westerners at Work	46-49
Regional Reviews:	
Sierras to the Sea	50-51
The Columbia Empire	52-53
The Continental Divide	54-56
Tehachepi to Tijuana	58-60
Olympics to the Coeur d'Alenes	61-63
The Wasatch Front	64-65
Labor and the Industrial West	66-67
The Western Outlook: News and Statistics	68-69
The West on its Way	70-78
Western Trade Winds	79
Yours For the Asking	80
The Showcase	81-82
Advertisers' Index	82

OUR COVER PICTURE

• One of the most ancient industries in the world, salt production is carried on with the most modern methods by the Leslie Salt Company on the shores of San Francisco Bay. The mountain of salt in the picture is about to be processed for both human and industrial use.

25¢ PER MONTH

\$2.00 PER YEAR

Copyright 1945 by King Publications

Published Monthly by King Publications

503 MARKET STREET YUKON 1537 SAN FRANCISCO 5, CALIF.

Please address all communications to the San Francisco office

A. C. PRENDERGAST, Editor

S. S. MORRILL, Assistant Editor

Washington Office: ARNOLD KRUCKMAN, Associate Editor, 1120 Vermont Ave., N.W., Washington 5, Telephone DIstrict 8822.

Los Angeles Office: J. E. BADGLEY, District Manager, 3835 Wilshire Blvd., Los Angeles (5), Telephone FAirfax 2301.

Chicago Office: A. C. PETERSEN, District Manager, 5833 S. Spaulding Avenue, Chicago 29, Telephone PRospect 1685.

New York Office: RALPH DORLAND, District Manager, 117 Hartwich St., Maywood, N. J., Telephone: Hackensack 2-2914-W.

Entered as second-class matter December 6, 1945, at the post office at San Francisco 1, California, under the Act of March 3, 1879.

In Our Mail Box

Labor Relations

Editor, Western Industry:

In the third paragraph of your January issue editorial entitled "Management at Fault," you state:

"If labor is at fault, through stubbornly refusing to abandon wartime pay that cannot survive in competitive post-war markets, management is still to blame for the disturbed situation, because it has failed to do a selling job with both the leaders and the rank and file of labor."

After some 30 years of handling labor, I must say I cannot agree with you that management has failed to do a selling job with both the leaders and the rank and file of labor. The policy of the labor leaders is to destroy confidence of the workers in management, and I might quote an incident to you that occurred in Washington a few years ago when I was there on a panel hearing on a wage request by the CIO unions.

The chairman of the panel was Dean Garrison and the labor representative was a man named Stevenson from Cleveland, a prominent CIO organizer, while the industry member was Almon Roth of San Francisco.

It was my task to make the argument before the panel against closed shop and after the session adjourned Mr. Stevenson came to me and one of our other operators said that we should understand the policy of the union, which was as follows: That first it is the policy of the CIO to move in and destroy every vestige of confidence in the management. After they have done this and perfected an organization and if management accepts the closed shop, the union may restore part of this confidence.

I notice that this man Stevenson is now prominent in the Detroit General Motors strike on the CIO side.

The CIO unions have well demonstrated in practically all of their strikes, particularly in the General Motors and steel, that their policy is one of vilification and misstatement. Under the present circumstances, it is not possible to do a selling job with our employees because they are following the lead of the union officials.

I have always been liberal minded, and I voted for Mr. Roosevelt twice because I thought big business and management did a terrible job in 1929 and the following depression years, and it was through the dishonesty and gross mismanagement then that the industrial leaders really lost the confidence of their workers. Roosevelt, with his more abundant life idea of spending other people's money, came along and

the workers are still listening to the siren song of his administration.

The CIO union has been pampered and indulged by the Federal Government and they know that immediately they can throw a wage dispute into governmental agencies they will benefit thereby. Until their leadership develops to that of at least the A. F. of L. standard their policy will not be at all constructive; in fact, it will continue to be destructive.

As to living wages, I believe the steel industry, the motor industry, and the mining industry are paying the highest wages in their respective districts, and to raise these wages to fantastic heights would work a hardship on the great majority of people in the district because all living costs usually rise after wage increases.

When labor leaders, as well as industrial leaders learn to eliminate the personal equation and sit around a table and work out their problems on a basis of the principles involved, we may eliminate some industrial strife. However, until the CIO unions have their ears pinned back, I see little chance of this condition developing.

W. J. O'CONNOR,
Manager Utah Department
American Smelting and Refining
Company
Salt Lake City

Negroes in the West

Editor, Western Industry:

I found your article on "Negroes in the West" in the January issue very interesting. I shall take pleasure in referring to the membership of our Seattle Inter-Racial Committee, of which I have been chairman for about two years.

GEORGE H. GREENWOOD,
Chairman, The Pacific National
Bank
Seattle, Washington

Editor, Western Industry:

I read "Negroes in the West" with particular interest. My reaction to it was definitely favorable, and I believe that the advancement of the point of view of the author would be in the interest of better race relations both within industry and in general.

PAUL HEYNEMANN,
Eloesser-Heynemann Co.
San Francisco

Statistical Value

Editor, Western Industry:

We find your magazine *Western Industry* of great interest and value in many respects.

In connection with our employment statistics program, we find the section "The West On Its Way" very helpful in keep-

ing us abreast of new plants established in California. This in turn enables us to have our employment indexes reflect the trend of employment in these new plants relatively promptly and thus avoid what in statistical parlance is called a "downward bias" which creeps into the figures if new firms are not picked up promptly enough.

M. I. GERSHENSON
Chief, Division of Labor
Statistics and Research
State of California

Farewell Greetings

Editor, Western Industry:

Because of sickness have closed office. Please terminate my subscription. Best wishes for deserved future success of a fine and useful magazine.

D. V. STRATTON
Pedro Valley, Calif.

Reconversion

Editor, Western Industry:

We were pleased to see the use you made of the "Olson City" photo, and know that it is bringing favorable attention to our firm.

Like most manufacturers, we found ourselves in turmoil for several months after terminations. Our production lines on specialty farm implements are now working out smoothly, and industrial equipment is coming along fairly well except for shortages of materials.

We feel there is a definite place for small industrial organizations like ours in the growing West, and certainly appreciate the boosters this theory has in publications such as yours.

FREDERICK J. COCHRANE,
Olson Manufacturing Co.
Boise, Idaho

EDITOR'S FIELD BOOK JOTTINGS

BOARDING an outbound Wilshire bus at Western Avenue, we encountered a booming-voiced driver who called every street in an almost operatic baritone. No danger of going past your stop with him, and after some other experiences, we wish he were quintuplets. Shortly he called out the name of some church — "Shirley Temple's favorite church," he explained.

"Haven't you any other points of interest on this line?" we asked, a few blocks later. For a fraction of a second he hesitated, then dodged behind a mask of imperturbability. "You got on too late," he replied, a trifle severely.

We wish the Los Angeles Motor Coach Lines would supply us the number of his bus, so we could discover just what it was we missed. Ingrid Bergman? Rosalind

Western Industry in Pictures . . . RFC Calls For Geneva Bids



Russell? . . . we dunno, but it's something to look forward to.

* * *

When the 11:30 a.m. streamliner out of San Diego was filled up, a second section fell to the lot of late comers, like ye ed. It proved to be a museum of transportation equipment antiquities. Our coach bore the historic name "Burlington" on the side, and the brakeman insisted that on one end was printed the warning "Don't shoot buffaloes from the platform."

But strangely enough, its running time to Los Angeles was only ten minutes more than the streamliner. We don't know whether the Santa Fe will try to suppress this issue of *Western Industry* as a libel on the streamliner, or whether they will order extra copies in pride over the fact that all its trains are strong on the finish.

* * *

Downtown parking in Los Angeles is getting so tight that "all-day parking lots" don't want all-day parking business any more. So if you have to park all day, the only thing to do is get your car at noon-time, drive around a few blocks and come

back—and pay a new parking charge. When it gets to be that they will only take you for an hour at a time, life certainly will be complicated.

* * *

Now that we are on the subject of transportation, it might be mentioned that a revival of the overnight sleeper buses tried out some years ago by Greyhound between San Francisco and Los Angeles is in prospect—but the revival is by a new competitor, rather than Greyhound.

Arguments were to be heard before the California Railroad Commission late in February on the application of Dave Wolzinger, operating as the Pony Express Stages, for authority to install such a service on the coast route between the two cities. Wolzinger is the man who made a 1c a mile bus line in Nevada between Las Vegas and the Basic Magnesium plant pay handsomely when others had gone broke trying to operate on a higher fare.

Now he proposes a \$6 fare for this overnight sleeper, plus \$2 for a lower berth and \$1.25 for an upper, and, as may be expected, Greyhound and the Santa Fe bus system will fight it tooth and nail.

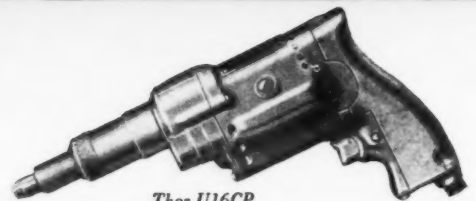
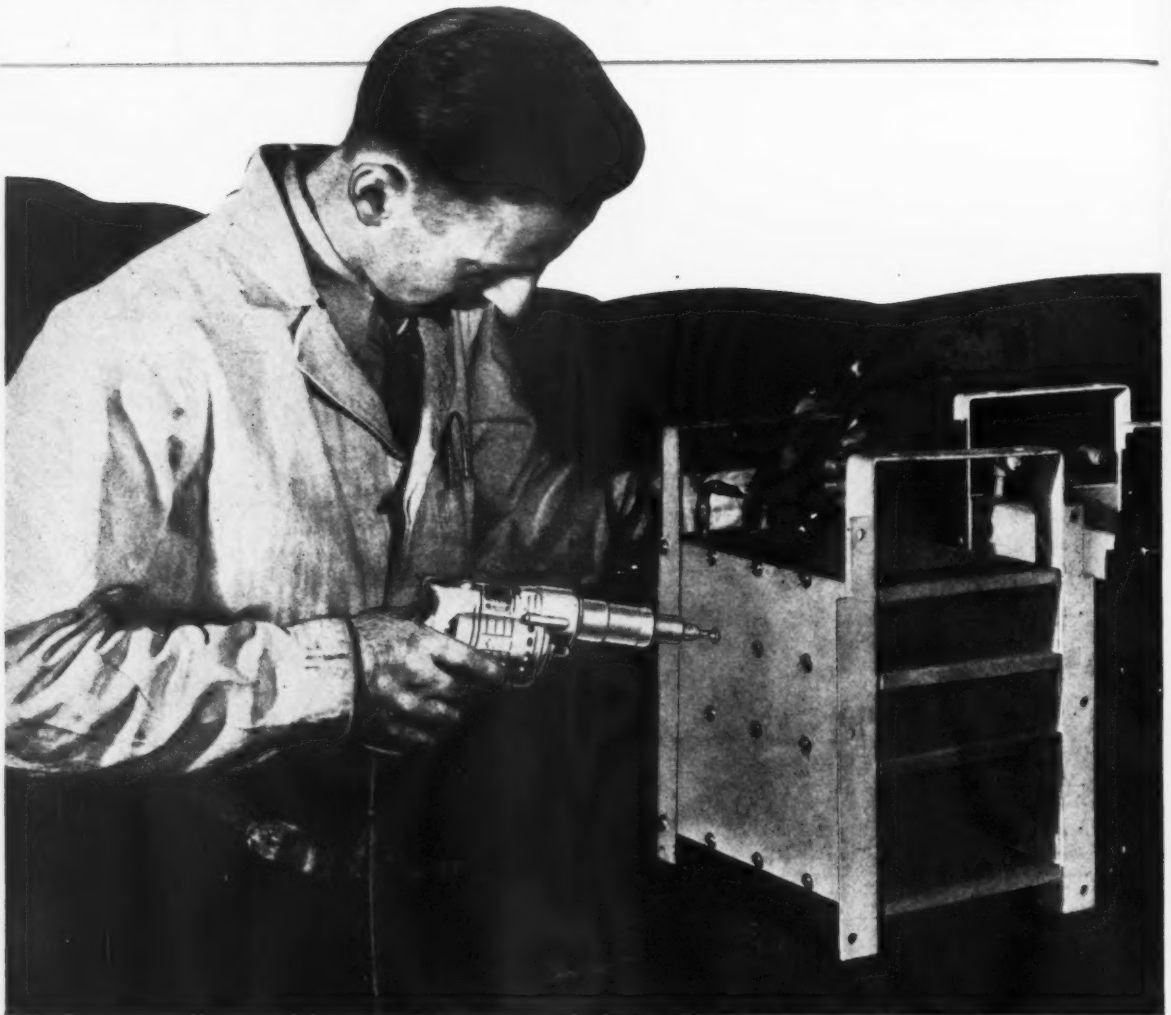
Greyhound reportedly earned 28c a mile on an operating cost of 20c on its overnight sleepers, and ran up 5,000,000 operating miles before the service was discontinued. On a Los Angeles-Albuquerque run of 800 miles it only earned 22½c, over a 10,000,000-mile operating period.

Why this imitation-Pullman service was given up does not seem to have been apparent, but with all the urge that has been given to travel during the war, it seems likely that this type of transportation may have a future.

* * *

How's this for a radical solution of the urban transportation problem: discard 30-ton street cars that never carry enough payload to earn their keep except in rush hours, forget the buses and trolley coaches that are only partial solutions, and adopt a light single seat with a complete shield against the wind, running on a track. Drop your money in a slot, dial your destination like a pay telephone and get home at terrific speed. A good friend of our says it is mechanically possible. All it needs is acceptance.

"More than Human"



Thor U16CP
(Shown above driving screws on a refrigerator unit)

All Screw driving problems solved here!

A wide range of straight, angle and extension attachments speed assembly—whatever the size, type, location or tightness requirements of your screwdriving or nut setting jobs. In fact, Thor engineers have never failed to solve any screw or nut driving problem yet presented. They'll be glad to check on yours . . . without obligation.



Thor U19AP
Right Angle Screwdriver

in their

ACCURACY
EFFICIENCY
SPEED

Thor

PORTABLE ELECTRIC
SCREW DRIVERS and NUT SETTERS

*You'll "put it together"... faster with
these versatile assembly tools*

"UNCANNY" is the way operators describe the unfailing accuracy with which Thor portable electric assembly tools drive screws and set nuts to uniform tightness at top speed. But, it is understandable when you know the precision-built control features in these Thor tools.

An adjustable clutch, for example, standard on most models, permits driving each fastener precisely to a pre-set tension. Power is positively controlled, too,

by precision-wound motors and precision-cut gearing so that you get exactly the right combination of speed and torque for the job.

If you want to "put it together" three or four times faster—write, or call your nearest Thor distributor.

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. Jackson Boulevard, Chicago 6, Illinois

Birmingham	Boston	Buffalo	Cleveland	Detroit	Los Angeles
Milwaukee	New York	Philadelphia	Pittsburgh	St. Louis	
Salt Lake City	San Francisco	Toronto, Canada	London, England		

Thor PORTABLE POWER
TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

March, 1946—WESTERN INDUSTRY

UPSTAIRS.....

AND DOWN



The Douglas Globe-master, 108 passenger sky giant with a cruising range of 7500 miles.



MARINE



TRANSPORTATION



CONSTRUCTION



AGRICULTURE



INDUSTRIAL

RICHFIELD... LEADS THE WAY

Globe girdling planes or mud grubbing 'cats' . . . Machines that move or machines that produce . . . Each must have fuels and lubricants that have been tailored to their exacting needs by petroleum specialists.

RICHFIELD has pioneered in the perfection and production of the countless types of fuels and lubricants demanded by Western industry.

Whatever your job . . . moving a mountain or moving a hundred passengers to London, RICHFIELD can help you.

THERE IS A SCIENTIFIC RICHFIELD LUBRICANT FOR EVERY MACHINE IN EVERY TYPE OF SERVICE.

RICHFIELD

NOW is the time for all good men..."

... No, we're not asking you to come to the aid of the country, or the party, or however that old phrase goes. This is a suggestion that will **MAKE MONEY** for YOU!

Since you're already well acquainted with **WESTERN INDUSTRY**, we feel you'd like to be sure to get it regularly each month. Every issue in coming months will be full of the very information you're after—what's doing in the West during this critical reconversion period.

At the new low rate of \$4 for three whole years (36 issues)—you can't lose!

SUBSCRIBE NOW—SAVE \$2!

Busy days are ahead...

Yes, the War's over and industry is getting many materials that were hard to find a few months ago. But paper stocks are far from normal even yet and there's a chance that some of our readers may be disappointed if we run out of magazines.

The best way to assure yourself of a copy of **WESTERN INDUSTRY** each month is to put a check (or cash) in the convenient postpaid envelope attached and mail it to us—**TODAY!**

SUBSCRIPTION RATES:

**1 year \$2 2 years \$3
3 years \$4**



A Candle Won't Broil a Steak

—and neither will inadequate wiring run electrical equipment at FULL CAPACITY

Wire ahead!

IF A MACHINE is running 1500 RPM, and it should run 1800 RPM, don't blame the operator. Chances are that *reduced voltage* is curtailing the machine's production. In fact, inadequate wiring can reduce efficiency as much as 25% to 50%!

Check up now on your *real* power needs! Don't let obsolete wiring handicap expensive production equipment. Remember that emer-

gency alterations later may cost much more than foresighted wiring improvements today.

Talk it over with consulting or plant power engineer, electrical contractor or power salesman. They'll advise: Wire Ahead! Anaconda Wire & Cable Company, Subsidiary of Anaconda Copper Mining Company, 25 Broadway, New York 4, N. Y. Sales Offices in Principal Cities. 103709

Look to Anaconda for wire and cable controlled from copper ore to finished product by Anaconda basic research and engineering. Every Anaconda product is a lasting investment . . .

*Check your wiring
plans before
they check you!*



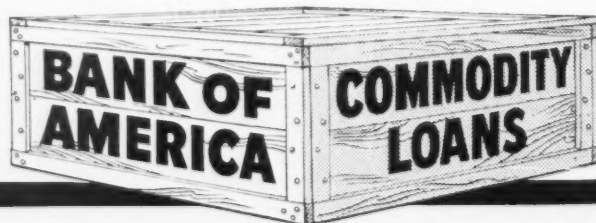
ANACONDA WIRE & CABLE COMPANY



GET YOUR CAPITAL OUT OF THE CRATES!

● No need to keep good working capital tied up in your inventories! This statewide bank has a department devoted exclusively to serving commodity loan borrowers. Over the years, the Commodity Loan Department has earned the appreciation of farmers, manufacturers, and other producers throughout California. Regardless of what your product may be, so long as it is marketable, it may be used as collateral for a commodity loan. Discuss your problem at the nearest branch of this California-wide bank.

Convert your inventory into cash



MP11-6

California's statewide bank

The belt that leads a **DOUBLE LIFE**

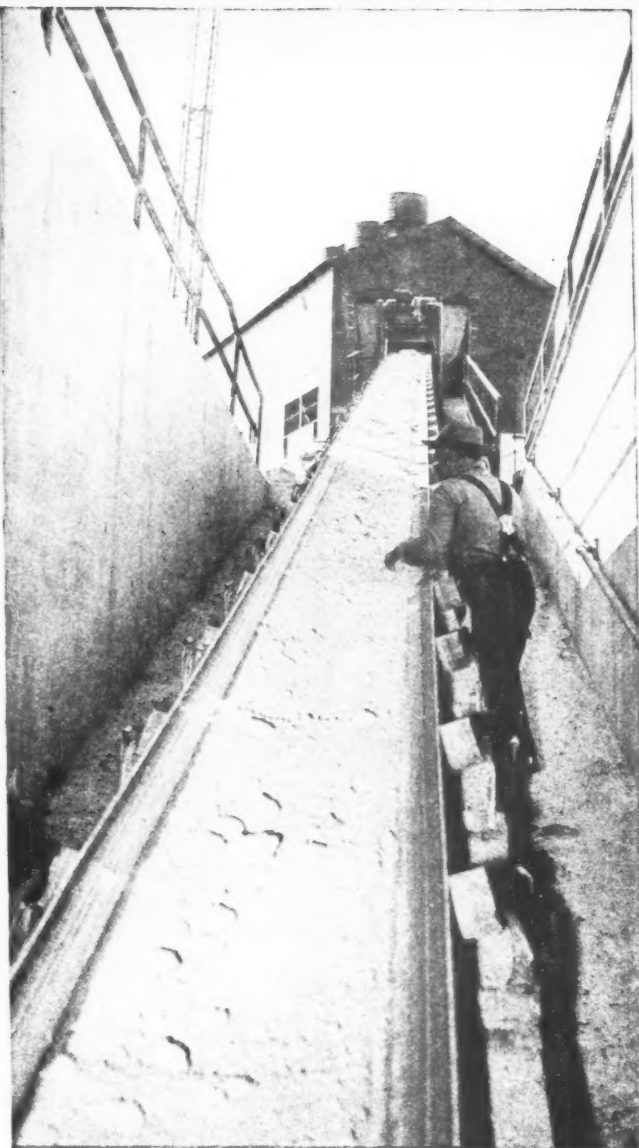
BOTH OF THEM PROFITABLE

Users report Lightning belt life up to three times that of smooth belt in the movement of fine material up steep inclines.

The unusual center rib-construction of Lightning Conveyor Belt grips material... wet or dry... in pocket-like divisions to prevent load slippage.

Elimination of load slippage reduces belt cover wear to the minimum. Belts can run slower to deliver rated tonnage.

When the ribs do finally wear down after long usage, Lightning Conveyor Belt may serve a long second life on flat conveying. Two belts for the price of one, then, is not uncommon to users of Lightning.



Get a grip on loose loads with LIGHTNING RIBBED CONVEYOR BELTS

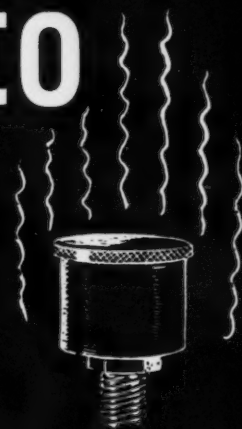
The **AMERICAN RUBBER Mfg. Co.**

OAKLAND, CALIFORNIA

MANUFACTURERS OF RUBBER PRODUCTS FOR INDUSTRY



resists heat up to 360° F.



New Cycol Litho Grease

For all high temperature lubrication; a soft grease with abnormally high melting point, a greater affinity for metal, a higher resistance to steam, hot water, acids, and fumes.

. . .

Cycol Litho Grease is available in 3 NLGI grades—Numbers One, Two and Three. This new Cycol product has already proved

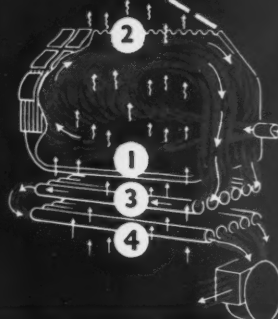
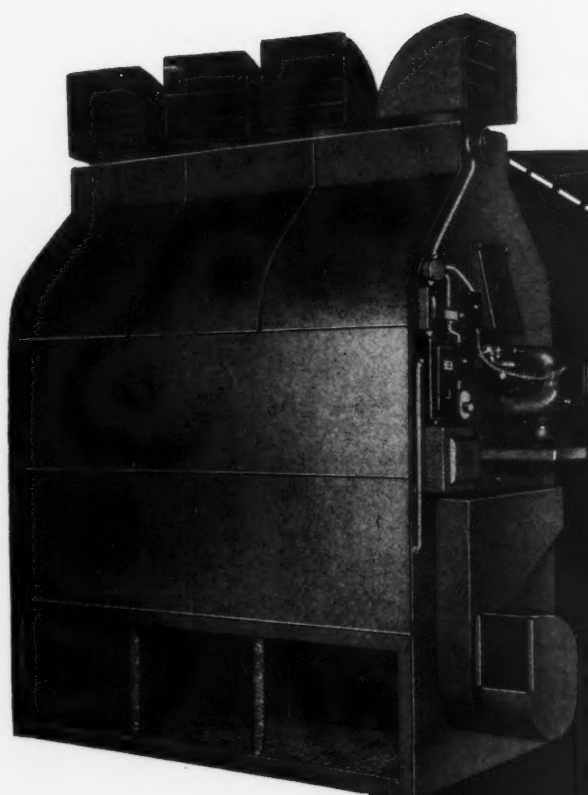
itself, on the job, in temperatures up to 360 degrees F. (Ordinary cup greases melt at 200 degrees.) Use it for all cup grease lubrication where heat is a factor. Your Associated Representative has the complete story—call him today.

Tell Your Associated Dealer You Want a Credit Card

**Correct Lubrication
is Machinery's Most
Vital Need**



**TIDE WATER
ASSOCIATED
OIL COMPANY**



DRAVO FOUR PASS combustion chamber design—Flame and gases of combustion flow internally four times across the path of the high velocity air stream being heated. Fins and deflectors on the outside of the chamber materially increase heat transfer. These features contribute to a high efficiency from the fuel consumed—more usable Btu's per barrel of oil or cubic foot of gas.

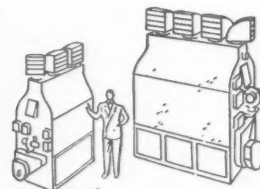
Economical Heat Exchanger Uses Direct Fuel-to-Air Principle For Large Scale Space Heating

This heater employs an efficient direct heat transfer method - through only one thickness of metal - the cool air crosses the path of the flame and gases four times before it is discharged by high velocity fans into the area to be heated.

Efficiencies run high - 80 to 85% - this fact together with minimum requirements of maintenance and care, makes the Dravo designed direct fired warm air heater a logical choice where large,

unobstructed areas are to be heated.

Dravo heaters are shipped from the factory complete, with refractory material installed. When gas or oil is the fuel they need only be connected to the fuel and power lines and they are ready to operate. They can be moved from place to place to meet supplementary heat requirements. They can be operated individually if a portion of the plant is shut down. Maintenance is negligible. No specialized attendance is required. For the whole story ask for Bulletin 509-A. Address Dravo Corporation, Heater Department, 300 Penn Avenue, Pittsburgh 22, Pa.

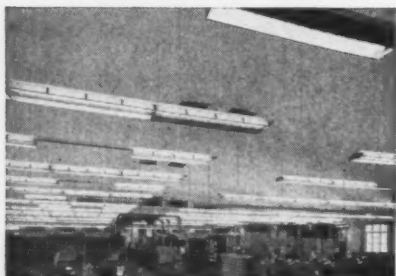


300,000 TO 1,650,000 B.T.U. CAPACITY.
MULTIPLE UNITS COMBINE FOR ANY OUTPUT

**The experience of over
4,000 acoustical installations
...is at your service**



*Acousti-Celotex installation — office of the
Western Pacific Railroad Co., San Francisco*



*Sound conditioning increases efficiency at
The Western Union Telegraph Co., Oakland*



*Acousti-Celotex provides quiet in these
offices, Kraft Cheese Co., San Francisco*



*Sound conditioned assembly and motor test
room, Caterpillar Tractor Co., San Leandro*



*Acousti-Celotex sound conditioning, general
office, Fairbanks Morse & Co., San Francisco*



THE great reservoir of our experience, gained in over 4,000 acoustical installations, is daily solving sound conditioning problems in all types of offices and factories.

This practical knowledge is available to you *only* through Western Asbestos Co., for our organization has analyzed, engineered and installed more sound conditioning in this area than any other firm in the acoustical field.

The combination of this experience with the world's most widely proved and used acoustical materials—Acousti-Celotex products—is your complete assurance of a job well done. The counsel and recommendations of a sales engineer are at your service, entirely without obligation.

WESTERN ASBESTOS CO.

DISTRIBUTORS • ENGINEERS • CONTRACTORS

YOUR BLOOD CAN SAVE LIVES—BE A DONOR TODAY!

MAIN OFFICE: 675 TOWNSEND STREET, SAN FRANCISCO 3 • BRANCH OFFICES: OAKLAND, RICHMOND, SACRAMENTO

MILD MANNERED MEN (P.A.s)...

*Raise Caine
FOR STEEL*



WAREHOUSE STOCKS OF:

SHEET STEEL

HOT ROLLED,
COLD ROLLED,
HOT ROLLED
AND PICKLED,
GALVANIZED,
LONG TERNES,
VITREOUS
ENAMELING,
UNIFORM BLUE.

STRIP STEEL

HOT ROLLED,
COLD ROLLED
STRIP,
COLD ROLLED
FLAT WIRE.

MILD STEEL
BARS, BANDS,
AND PLATES

HOT ROLLED
STRUCTURAL
SHAPES



BUYERS OF STEEL have learned during wartime that raising Caine is a mild, quiet job of ordering by phone or mail. There's no need for your blood pressure to soar and no need to shop around. You can count on Caine to deliver promptly from stock the various items listed at the right.

Five plants in five cities — two on the Pacific Coast — offer many advantages to Western buyers. That's why it pays to remember "for the best source of steel" *raise Caine*.

CAINE STEEL CO. of CALIF.

LOS ANGELES 11

2451 E. 23rd St. • KI. 1211

OAKLAND 8

3110 Adeline St. • HU. 0900

CHICAGO

ST. LOUIS

MEMPHIS

OAKLAND

LOS ANGELES

*How you benefit
through these* **ADDED CRANE VALUES**

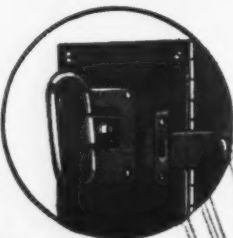
P & H's PROTECTIVE PANELS PROTECT

**the
CRANE**



Overloading the crane is prevented by these positive relay trips. No damage to crane can occur because it will not operate until overload has been removed. Resetting of relay is accomplished by simple push button at operator's station.

**the
OPERATOR**



This safety lock prevents access to the cabinet which houses the switchboard and live elements. Doors cannot be opened without first disconnecting the power. Doors must be closed to connect power. This important safety factor is an additional protection against industrial accidents.

the OWNER

Production delays are eliminated — crane service is more dependable. Here, costly fuse replacements are ended forever — maintenance is reduced to a minimum.

It will pay you to insist on these added values when you buy your next electric crane.

P & H

HARNISCHFEGER

CORPORATION

ELECTRIC CRANES • EXCAVATORS • ARC WELDERS

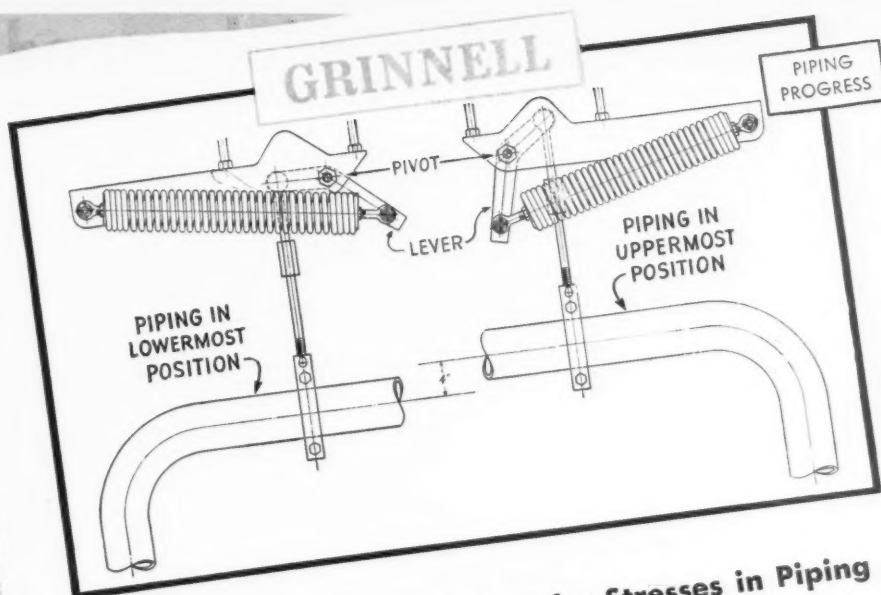
**ELECTRIC
OVERHEAD CRANES**

4604 W. NATIONAL AVE.
MILWAUKEE 14, WIS.

HARNISCHFEGER

HOISTS • WELDING ELECTRODES • MOTORS





Elimination of Weight Transfer Stresses in Piping

Question: How can weight transfer stresses be eliminated from piping subject to vertical movement, thereby maintaining the full safety factor of the system?

Answer: By the use of hangers which provide constant support to the piping throughout the entire range of vertical movement.

The above diagram of a Grinnell Constant-Support Hanger in operation illustrates how constant support is provided. A lever, turning on the main pivot, balances the weight of a vertically shifting load because the change in moment arm with lever rotation is such that the product of the moment arm and the spring force is always constant and equal to the weight of the piping system.

WHENEVER PIPING IS INVOLVED

The designing and production of pipe hangers to meet the varied requirements caused by expansion, contraction, pressure, vibration and load call for a thorough working knowledge of springs, levers and other mechanical devices as well as of pipe and piping systems. As a result of 95 years of piping experience and continuous laboratory research and experimentation, Grinnell

is able to offer standard and special-purpose hangers to meet every conceivable requirement in piping.

Whenever piping is involved - Grinnell has the specialized engineering knowledge to handle the job - from first plan to actual operation. Grinnell can supply everything from a tiny tube fitting to a complete power plant installation.

GRINNELL COMPANY, INC. Executive Offices,
Providence 1, R. I. Branch warehouses at Los Angeles,
San Francisco, Oakland, Seattle.



WHENEVER PIPING IS INVOLVED

REVERE light metals widely used in

Fairchild "Packet"



Fairchild C-82 "Packet" has a range of 4000 miles with 2312 cubic feet of cargo space—88% of the capacity of a railroad boxcar.

ORIGINALLY designed as an Army cargo and troop carrier, the Fairchild "Packet" quickly pointed the way to future traffic in air freight.

The C-82 has sometimes been called the "flying boxcar". It might also be called a "flying inventory of Revere aluminum tubing", for in it is used a broad cross-section of the types and sizes of aluminum alloy tubing produced by Revere. In addition, Revere magnesium alloy sheet and plate are used for a number of purposes. Among them is the large instrument panel illustrated here.

The use of Revere magnesium in this new airplane is testimony to the way engineers have come to regard the wrought magnesium alloys in their untiring search for new and better ways to reduce unproductive weight. In the high strength-weight ratio of magnesium alloys, in the opportunity these materials offer for increasing the local stability and stiffness of many structures without weight penalty, and in the substantial weight savings often directly possible, engineers find an attractive avenue for advances in aircraft performance.

For detailed information on magnesium alloy sheet, plate, tube, rod, bar, extruded shapes and forgings, call Revere. A Revere Technical Advisor will gladly consult with you.

REVERE

COPPER AND BRASS INCORPORATED

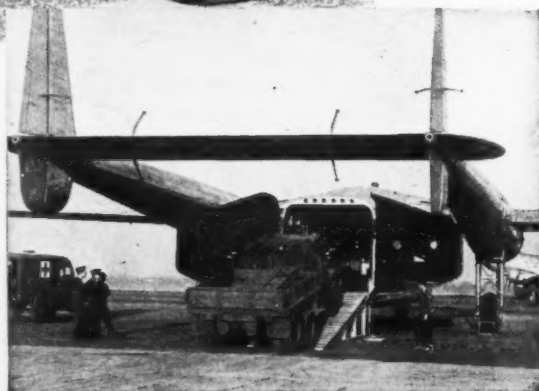
Founded by Paul Revere in 1801

230 Park Ave., New York 17, N. Y.

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in principal cities.

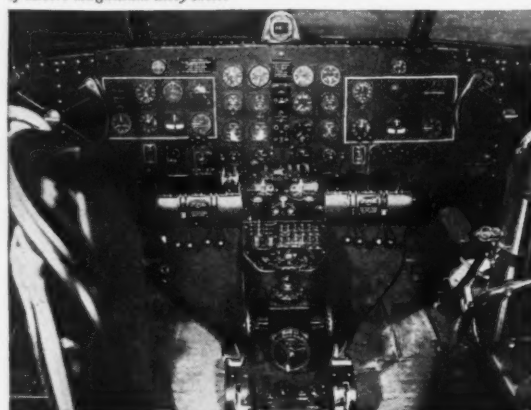
Pacific Coast District Sales Offices in San Francisco, Seattle, Los Angeles

Listen to Exploring the Unknown on the Mutual Network every Sunday evening, 6 to 6:30 p.m., PST.



Here is the way a 2½-ton Army truck can climb into the "Packet" under its own power. The ramp is carried inside the airplane.

View of the instrument panel, one of the various units in the "Packet" made of Revere magnesium alloy sheet.



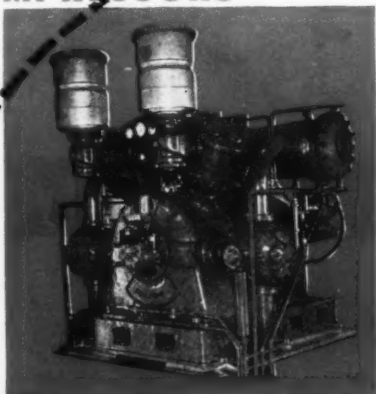
SAYS THE PLANT ENGINEER . . .

YOUR JOB CAN BE BIGGER TOO!

**HERE'S WHAT HAPPENED WHEN I MAILED
A COUPON LIKE THE ONE BELOW**



**SULLIVAN
100 Series
AIR
COMPRESSORS**



1. By using the material received I was able to get approval for the purchase of a new, completely modern compressed air plant.
2. The Sullivan WN-114 that I bought required so little attention that I was given additional supervisory duties and more responsibility.
3. The management now has a much better understanding of me and my job.

Sullivan, 100 Series, packaged, air-power plants are two-stage, double-acting, heavy-duty, continuous service compressors — much smaller than old style, bulky compressors of the same capacity — yet have operating economies exceeding those of the older units.

100 Series Compressors need only to be hooked up to power, water and air lines and they are ready for 24-hour per day constant and efficient service. They are particularly suitable for synchronous motor drive and extremely well adapted for drive from steam turbines or diesel engines. Offered in single and twin units with piston displacements from 378 C.F.M. to 3656 C.F.M. at pressures up to 125 p.s.i.

THIS CAN HAPPEN TO YOU

Send this coupon and you'll get all these FREE—a complete set of "DIVIDENDS," each of which discusses a different air compressor maintenance problem—a method of keeping your air compressor constantly operating at top efficiency—and a 52-page Booklet packed with vital information about air compressors. Sending this coupon may be the most important thing you've ever done for your future. Why not send it NOW.

SULLIVAN

THE WORLD'S FINEST AIR COMPRESSORS FROM 1/4 TO 3,000 H. P.

SIGN AND MAIL NOW

OR PLEASE WRITE ON COMPANY LETTERHEAD GIVING YOUR TITLE

SULLIVAN MACHINERY COMPANY, Dept. 6—946 Woodland Ave., Michigan City, Indiana.

Please send me, without obligation, the complete set of SULLIVAN "DIVIDENDS" and your 52-page Booklet on air compressors.

NAME _____ TITLE _____

ADDRESS _____ CITY _____ STATE _____



Never thought we'd be done by five

Going down, please.

What is this? Is everything done a-ready?

Yes, everything's done.

A day's work finished at quitting time is proof of a business on even keel. *Overtime* is wasteful.

Can the planned business form cut down this extra-hour extra-expense? Thousands of firms that use Moore Business Forms say that it can.

The Moore representative, invited in for quotation, asks, Is this form necessary? Can it be combined with another? Is information listed in sequence? Can the reverse side of the page be utilized? Is the weight of paper economical? Correct answers may save you thousands of dollars—and hours.

Moore Business Forms, Inc., comprises a group of firms long under

Moore ownership, now also under the Moore name. An unequaled experience in all phases of American business is at your service. For information, get in touch with the headquarters of your nearest Moore division, as listed below, or its local office. *Moore stands ready to supply you with everything from a simple sales book to the most intricate multiple-copy form.*

AMERICAN SALES BOOK CO., INC., NIAGARA FALLS; ELMIRA, N. Y.
PACIFIC MANIFOLDING BOOK CO., INC., EMERYVILLE; LOS ANGELES, CALIF.
GILMAN FANFOLD CORP., NIAGARA FALLS, N. Y.
COBBY-WIRTH MANIFOLD BOOK CO., MINNEAPOLIS, MINN.
MOORE RESEARCH & SERVICE CO., INC., NIAGARA FALLS, N. Y.
SOUTHERN BUSINESS SYSTEMS, INC., ORLANDO, FLA.
MOORE BUSINESS FORMS, INC. (Now Southern Div.), DALLAS, TEX.; ATLANTA, GA.
In Canada—Moore Business Forms, Ltd., succeeding Burt Business Forms, Ltd., Toronto;
Western Sales Book Co., Ltd., Winnipeg and Vancouver;
National Sales Check Book Co., Ltd., Montreal

MOORE BUSINESS FORMS, INC.

ADV. BY N. W. 0702



We thrive on the **TOUGH ONES!**

HE generally comes alone to see you. You called for him because something's gone wrong with a machine or process . . .

Now you tell him about it, and it turns out he knows a lot about equipment just like yours. Nine chances out of ten he can tell you right off what to do. You feel better right away.

And the tenth chance? Well, that's the tough nut. Our man goes away . . . and comes back double! Yes, he brings another man who may be a chemist . . . or a former machine designer . . . or a former shop superintendent . . . but definitely a specialist. These two men between them can almost always fix your tough nut problem.

But how about that one problem that stumps

both men? Now you get something special! The research laboratory enters the picture . . . a new formula is developed . . . the refinery produces a trial lot . . . and you receive a sample.

You try the new stuff—and *it's O. K.*! Then you tell your Boss: "Sure was a headache, but here's how I licked it . . ."

And you did! Didn't *you* think of calling the Shell Lubrication Engineer?

* * *

Call your local Shell Representative, or write Shell Oil Company, Incorporated, 50 West 50th Street, New York 20, New York; or 100 Bush Street, San Francisco 6, California.

SHELL INDUSTRIAL LUBRICANTS



The Symbol That Came *To Life!*



The man who walks into your factory wearing this symbol is the living embodiment of a service which gives you the correct answers to your problems in efficient mechanical transmission of power. He's the Dodge Transmissioneer.



DODGE

MISHAWAKA

Supporting the Transmissioneer is a broad line of mechanical power transmission equipment—Dodge precision-built bearings, sheaves, pulleys, clutches and other drive components. Every Dodge product reflects the engineering advancements and manufacturing "know how" that come from 64 years of experience.



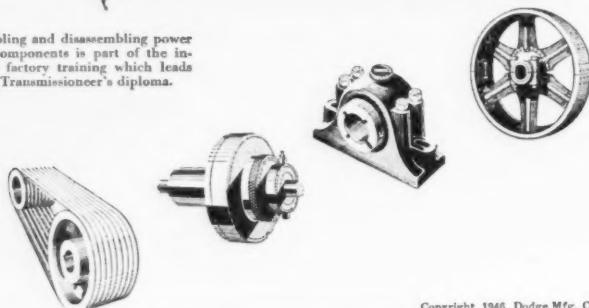
Assembling and disassembling power drive components is part of the intensive factory training which leads to a Transmissioneer's diploma.

Your Transmissioneer is qualified to select the power drive equipment which best meets your specific needs. His knowledge and experience, plus Dodge products, provide the up-to-date solution of your power transmission problems.

Look in the classified telephone directory under "Power Transmission Equipment" for the Transmissioneer in your territory. He will advise you, without obligation. Your needs can usually be supplied from Dodge distributors' stocks. Transmissioneered means advanced design in power drives.



DODGE MANUFACTURING CORP., MISHAWAKA, IND.



Copyright, 1946, Dodge Mfg. Corp.

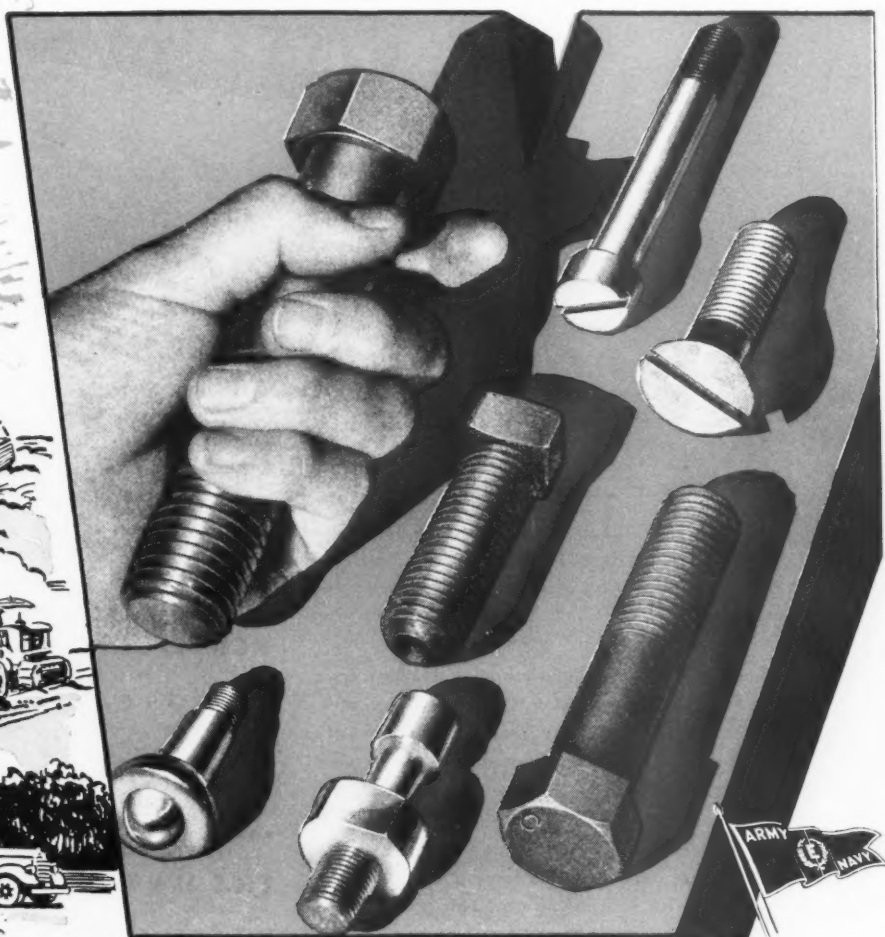
FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY,
ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

NAME PLATES

CLEVELAND *Top Quality* FASTENERS

...turn from Demand to Supply—your supply

From the demands of war equipment for our tough high carbon heat treated cap screws and special fasteners we gladly turn to the requirements of normal manufacturing. These same fasteners, made with precision by the Kaufman Double Extrusion Process, are flowing into peaceful channels of trade. More than 90% of our capacity went to war. It was good enough to earn for us the Army-Navy E. But we welcome the renewal of giving service to industrial users everywhere with our improved and increased facilities. Send us your inquiries for Cleveland Top Quality Fasteners.



CLEVELAND
Top Quality
FASTENERS

The Cleveland Cap Screw Company

2917 EAST 79TH STREET • CLEVELAND 4, OHIO

Warehouses: Chicago, Philadelphia, New York, Los Angeles

Ask your Jobber for Cleveland Fasteners

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY



EYES HAVE EYELIDS BUT

EARS HAVE NO "EARLIDS"

EYES have it easy compared to ears. Eyelids can block out irritating light. But ears have no "earlids." They have to take noise every minute. And to people working under tension in offices and factories, noise can become a serious irritation.

Conditions in offices and factories today have spotlighted noise as a troublemaker. Overcrowding . . . inexperienced help and increased activity have brought higher noise levels to every floor. This irritates office and factory workers and slows productive activity.

Fortunately there's an easy way to mute today's noises into soothing quiet that works magic with busy workers. Follow the example of leading firms by Sound Conditioning with Acousti-Celotex.* This is the famous perforated fibre tile and most widely used of all sound conditioning materials. It can be applied quickly and

quietly without disturbance. It can be painted without any loss of efficiency. ☆ Call the Acousti-Celotex Distributor nearest you. He is sound conditioning headquarters and a member of the world's most experienced acoustical organization. His advice is yours without obligation, and he guarantees results. A phone call or note will bring him to your desk promptly.

• • •

Distributors of Acousti-Celotex in the West

ASBESTOS SUPPLY COMPANIES
SEATTLE • TACOMA • PORTLAND • SPOKANE • MISSOULA

JAY GREAR CORPORATION
ALBUQUERQUE • EL PASO

J. B. MATZ, SPECIALTY CONTRACTOR
PHOENIX

LAUREN BURT, INC.
FORMERLY ROCKY MOUNTAIN ACOUSTICAL CO.
DENVER • SALT LAKE CITY

THE HAROLD E. SHUGART CO.
LOS ANGELES

WESTERN ASBESTOS COMPANY
SAN FRANCISCO • OAKLAND • SACRAMENTO



Sound Conditioning with
ACOUSTI-CELOTEX
** Perforated Fibre Tile* REG. U.S. PAT. OFF. SINCE 1923

PRODUCTION PLANNING SHOULD INCLUDE

WESTERN manufacturers facing the problem of plant expansion or conversion are alert to the importance of ample provision for motor transportation. In their building programs they are providing proper facilities for its enlarged use.

Their plans range all the way from simply furnishing adequate off-street loading and unloading space to ingenious methods for tying motor transport directly into the production lines. Thus storage and multiple handling are eliminated and inventory turnover is expedited.

THIS

...and
THIS



No one plan will fit all production set-ups but this much is certain:

Motor transport's fast, flexible, safe service exclusively supplies more than 8,000 communities in the Pacific

West. It can fit production plans to cost-cutting advantage.

Your Traffic Manager no doubt has ideas that warrant consideration in connection with production planning. If you do not operate your own Trucks and Trailers, we suggest you consult an experienced for-hire motor carrier.

World's Largest Builders of Truck-Trailers
FRUEHAUF TRAILER COMPANY
Sales and Service in Principal Cities



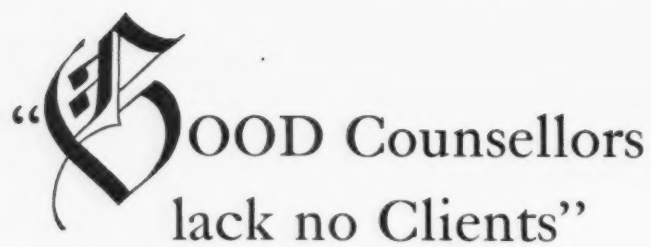
Modern inside truck loading platform that ties "Incoming" and "Outgoing" with "Production" for a large food processing plant.

ASK YOUR ARCHITECT!

A recent survey among leading Architects revealed a wealth of advance thinking on the subject of motor transport terminal facilities. If you are planning a new plant or the expansion of your present one, ask your Architect for his ideas on how you can take full advantage of this modern production tool.

FRUEHAUF TRAILERS

"Engineered Transportation"
REG. U. S. PAT. OFF

“GOOD Counsellors
lack no Clients”

William Shakespeare

THE McCARTY COMPANY

ADVERTISING COUNSELLORS

ESTABLISHED 1919

LOS ANGELES • SAN FRANCISCO • SEATTLE • DALLAS • PITTSBURG

HERE IS A CHANCE TO



ONE OF YOUR
RECONVERSION PROBLEMS

We have vast quantities of surplus nuts, bolts and screws left over from the emergency production of hundreds of war vessels. This general stores stock of fastenings is available for immediate delivery

and means time and money savings to you. Included in this inventory are large quantities of bolts and screws, available in the following standard specifications. There are many other items not specifically listed.

Bolts

CARRIAGE—BLACK
S.F., $\frac{1}{4}$ " x $\frac{3}{4}$ " up to $\frac{3}{4}$ " x 12".
MACHINE—BLACK
S.F.S.N., $\frac{3}{16}$ " x $\frac{3}{4}$ " up to $\frac{1}{4}$ " x 12".
MACHINE—BLACK
A.F.R.S.F., hex head, $\frac{1}{4}$ " x $\frac{3}{8}$ " up to $1\frac{1}{2}$ " x 18".
MACHINE—GALVANIZED OR CADMIUM
A.S.R., hex head, $\frac{1}{4}$ " x $\frac{3}{4}$ " up to $1\frac{3}{8}$ " x 7".
MACHINE—STEEL
A.S.R., square head, $\frac{1}{2}$ " x $\frac{1}{4}$ " up to $1\frac{3}{8}$ " x 7".
MACHINE—BRONZE
hex head, unfinished, $\frac{1}{2}$ " x 2" and up.
(All of the above available in various type threads)
STOVE BOLTS—STEEL
F.H. and R.H., $\frac{3}{16}$ " x $\frac{3}{8}$ " up to $\frac{3}{8}$ " x 6".
STUD BOLTS—STEEL
milled U.S.S., $\frac{1}{4}$ " x 1" up to 1" x 6".
SHOULDER-EYE BOLTS
black or galvanized, $\frac{3}{8}$ " x $\frac{3}{4}$ " up to $\frac{1}{4}$ " x 3".
DROP BOLTS—BRONZE
hex head with wing nuts, $\frac{3}{8}$ " x $\frac{3}{4}$ ".
LAG BOLTS—STEEL
black—square head, $\frac{3}{16}$ " x $1\frac{1}{4}$ ".

Screws

SCREWS—CAP
H.H.U.S.S., $\frac{3}{8}$ " x 1" up to $\frac{1}{2}$ " x $2\frac{1}{2}$ ".
SCREWS—CAP—STEEL
U.S.S., socket head, $\frac{3}{8}$ " x $\frac{1}{2}$ " up to 1" x 4".
DRIVE SCREWS
Parker-Kalon— $\frac{3}{16}$ " up to $\frac{3}{8}$ ".
LAG SCREWS
 $\frac{3}{8}$ " x 2" up to $\frac{3}{8}$ " x 12".
MACHINE SCREWS—BRASS
F.H. and R.H., $\frac{1}{4}$ " up to 2".
MACHINE SCREWS—BRASS
F.H. and R.H., $\frac{3}{16}$ " x $\frac{5}{8}$ " up to $\frac{3}{8}$ " x $1\frac{1}{2}$ ".
MACHINE SCREWS—STEEL
F.H. and R.H., $\frac{1}{4}$ " up to 3".
MACHINE SCREWS—FILLISTER HEAD
 $\frac{7}{8}$ " up to 2".
SET SCREWS—SOCKET TYPE
 $\frac{3}{16}$ " x $\frac{1}{4}$ " up to $\frac{3}{4}$ " x 3".
SET SCREWS
S.H.C.P., $\frac{3}{8}$ " x $\frac{3}{4}$ " up to $1\frac{1}{4}$ " x 4".
WOOD SCREWS—STEEL
F.H. and R.H., $\frac{1}{4}$ " No. 0 to 4" No. 24.
ALLEN-HEAD SCREWS
black, $\frac{3}{16}$ " x $\frac{3}{8}$ " up to No. 10-32 x $\frac{1}{2}$ ".
SHEET METAL SCREWS
self-tapping, binding head, various sizes.

ATTENTION! Quantity Users and Buyers

This stock is offered for sale at 30 percent less than Calship's cost. Here is an opportunity to build up your war-depleted stocks of fastenings or create new stocks for peace time production at prices that will mean more profits for you. There is no red tape. All inquiries will receive prompt attention.

Write or Wire

Industrial Equipment Company

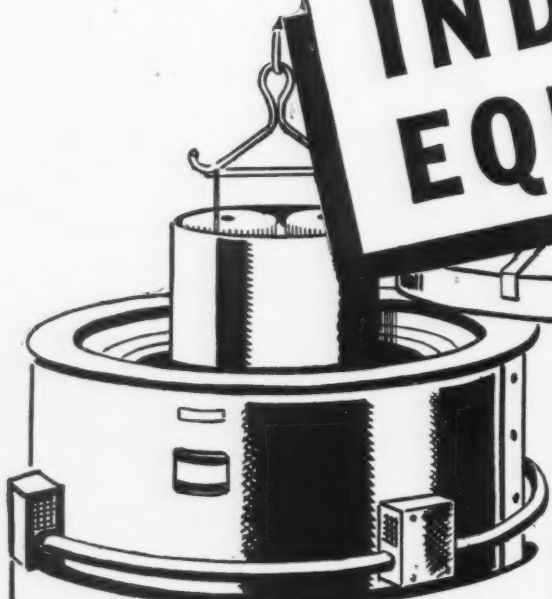
Care of California Shipbuilding Corporation, P.O. Box 966, Wilmington, Calif.

Exclusive Sales Representatives for

CALIFORNIA SHIPBUILDING CORPORATION

GOVERNMENT-OWNED WAR SURPLUS

INDUSTRIAL EQUIPMENT



HEAT TREATING FURNACES

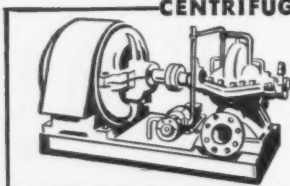
Disposal surplus heat-treating furnaces of practically every size and type for ferrous and non-ferrous applications, such as: normalizing, annealing, tempering, hardening, case hardening, surface hardening, nitriding, cyaniding. Batch type: car, box, pit, salt bath. Continuous types: portable and foundation designs. Fuel: gas, oil, electricity (high and low frequency).

MACHINE TOOLS

Government-owned surplus tools of every description being released to industry can help you reconvert. It is the job of the War Assets Corporation to dispose of this surplus property quickly and effectively. Toward that end we ask you to follow this simple 3 step procedure:

1. Submit in writing your requirements for machine tools and industrial equipment to us now.
2. Send a typewritten list to your nearest office listed below.
3. Make your descriptions brief, one line if possible, clearly grouping various types of equipment you need.

CENTRIFUGAL PUMPS



Available at most agencies in sizes 1½" to 6", complete with prime mover, usually electric motor driven.

Write, wire or phone your requests to the nearest RFC agency listed below for more detailed information. Credit terms may be arranged. If your local office does not have all the equipment you need, it will endeavor to locate it from other offices throughout the country.

VETERANS: To help you in purchasing surplus property from War Assets Corporation, a veterans' unit has been established in each of our Disposing Agencies.

A DISPOSAL AGENCY DESIGNATED BY THE SURPLUS PROPERTY ADMINISTRATION
for Surplus Producers' and Capital Goods, Aircraft and Plants formerly handled by Reconstruction Finance Corporation and for surplus Consumer Goods formerly handled by United States Department of Commerce.

WAR ASSETS CORPORATION

(A SUBSIDIARY OF RECONSTRUCTION FINANCE CORPORATION)

RFC OFFICES (INCLUDING FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES) LOCATED AT: Atlanta • Boston • Chicago • Denver • Kansas City, Mo. • New York • Philadelphia • San Francisco • Seattle • **OTHER RFC SURPLUS PROPERTY OFFICES LOCATED AT:** Birmingham • Charlotte • Cleveland • Dallas • Detroit • Helena • Houston • Jacksonville • Little Rock • Los Angeles • Louisville • Minneapolis • Nashville • New Orleans • Oklahoma City • Omaha • Portland, Ore. • Richmond • St. Louis • Salt Lake City • San Antonio • Spokane • **OTHER FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES LOCATED AT:** Cincinnati and Fort Worth

FOR SALE

Our inventories of Industrial Equipment include practically every type and make needed to meet industry's reconversion needs! A large percentage of this equipment is new, or little used—and every item is priced low for quick recovery.

Get in touch with the RFC Agency Office nearest you and outline your needs. Act quickly—this equipment must be sold at once!

CHECK THIS LIST FOR THE EQUIPMENT YOU NEED

Check the types of equipment on which you desire further and continuing information. Mail the coupon to your nearest RFC office listed below. Your name will be placed on our regular mailing list.

- | | |
|--|---|
| <input type="checkbox"/> Heat-treating furnaces (for all purposes) | <input type="checkbox"/> Thermal dryers-dehydrators |
| <input type="checkbox"/> Gantry type cranes | <input type="checkbox"/> Generator sets (internal combustion engine driven) |
| <input type="checkbox"/> Extrusion Presses | <input type="checkbox"/> Baling presses |
| <input type="checkbox"/> Electric and Pneumatic tools | <input type="checkbox"/> Electric copper cable |
| <input type="checkbox"/> Centrifugal and rotary pumps | <input type="checkbox"/> Anti-friction bearings |
| <input type="checkbox"/> Welding equipment | <input type="checkbox"/> Bonded and coated abrasives |
| <input type="checkbox"/> Chemical equipment | <input type="checkbox"/> Cutting tools |

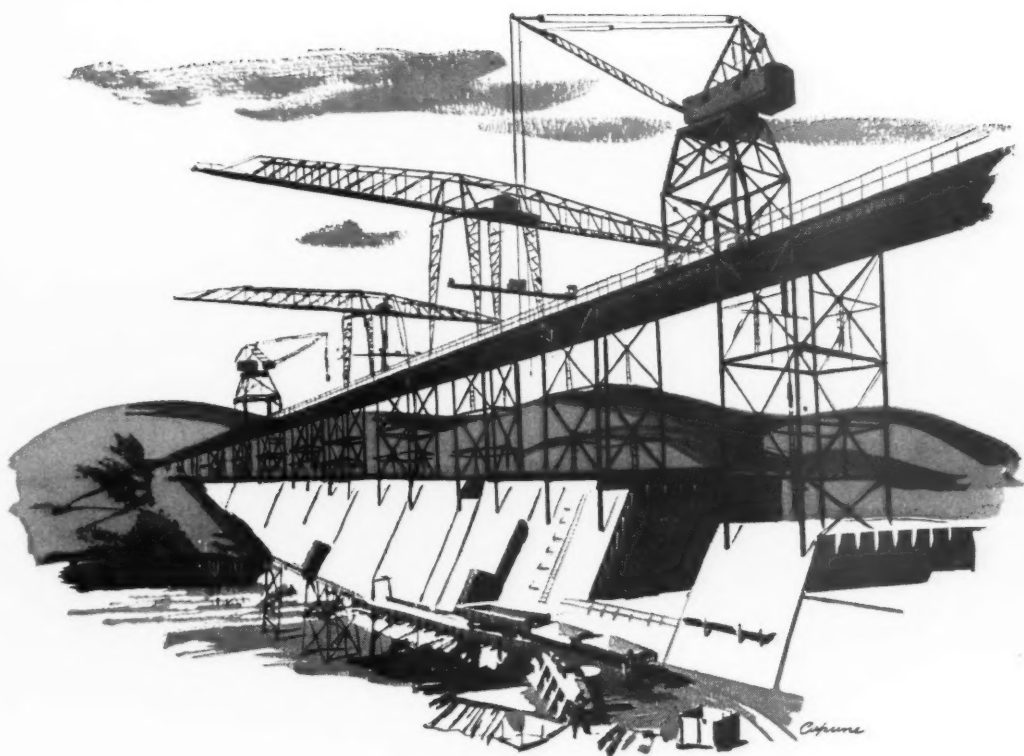
NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

15-277

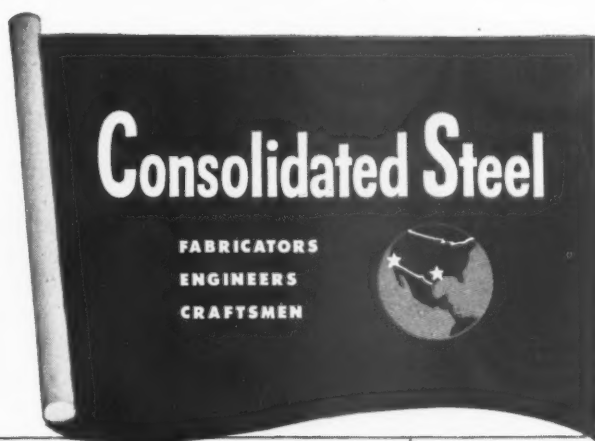


SPECIALISTS IN STEEL

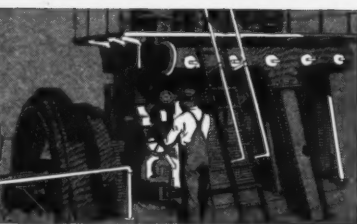
Engineers and craftsmen of Consolidated Steel Corporation know their business well. The unusual steel structures shown here are examples of the diversity and precision of their work.

Should your plans call for new construction, consider the capable services of Consolidated Steel. Immediate attention will be given your inquiry. Address Consolidated Steel, Los Angeles 22, California; or Orange, Texas.

LEADERS IN THE WEST AND SOUTH



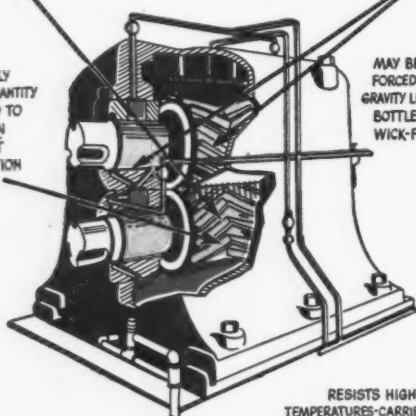
STANDARD ENGINEERS NOTEBOOK



EXTREME PRESSURE ADDITIVE
PREVENTS LUBRICANT FILM
RUPTURE AT LOWEST SPEEDS

HIGH AFFINITY FOR METAL KEEPS
LUBRICANT ON BEARING SURFACES
AND REDUCES POWER LOSS

RELATIVELY
SMALL QUANTITY
REQUIRED TO
MAINTAIN
EFFICIENT
LUBRICATION



MAY BE USED IN
FORCED-FEED AND
GRAVITY LUBRICATORS,
BOTTLE OILERS AND
WICK-FEED CUPS

RESISTS HIGH OPERATING
TEMPERATURES—CARRIES AWAY HEAT

Metal-adherent oils cut heavy-duty gear wear

Because they are viscous and extremely tacky, Calol Vistac Oils stick tightly to all metal surfaces. This quality, plus an unusual film strength obtained from special oiliness and extreme pressure compounds, gives them the ability to protect gears, such as heavy industrial reduction sets, on which extreme pressures are exerted over wide areas for a relatively long time.

Calol Vistac Oils are extremely efficient. Adequate quantities for safe operation may be supplied by the usual lubrication methods — force-feed and gravity lubricators and sight-feed cups; the lighter grades by bottle oilers and wick-feed cups.

In addition to gear lubrication, Calol Vistac Oils are used in rock drills, jackhammers and other air tools. They atomize quickly, are stable and flow easily in cold temperatures. They are made in six grades: 9X (SAE 10), 14X (SAE 20), 19X (SAE 40), 36X (SAE 40), 45X (SAE 40).

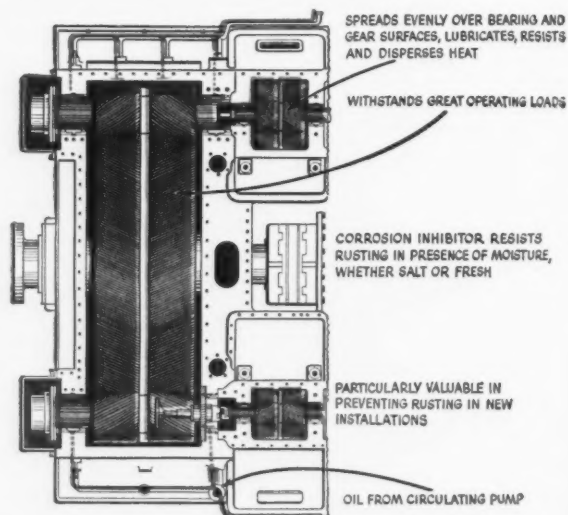
Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert service—make your maintenance job easier. Call your local Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

Inhibited turbine oils prevent rust damage

The usual danger of rusting when new installations of double reduction steam turbines are first charged can be eliminated by using Calol OC Turbine Oil 19. It will also give turbine and gears full protection throughout their lives.

Calol OC Turbine Oil 19 is a compounded oil, made from selected crudes. It contains a highly effective rust inhibitor which protects against both fresh and salt water. In official tests, steel strips immersed in mixtures of Calol OC Turbine Oil 19, fresh water and synthetic sea water showed no sign of rusting after 48 hours. Calol OC Turbine Oil 19 also contains an efficient oxidation inhibitor.

The high film strength of Calol OC Turbine Oil 19 provides a wear-reducing cushion that carries the heavy weight imposed on turbine bearings. Minimum wear prevents rotor misalignment trouble. Calol OC Turbine Oil 19 is non-corrosive and separates rapidly from water with little sludge formation.



FOR EVERY JOB A **STANDARD OF CALIFORNIA** TEST-PROVED PRODUCT

STATISTICAL QUALITY CONTROL GAINS WIDER USE IN THE WEST

The Demands of War for Surer Methods of Controlling Quality of Material Result in Improved Industrial Production Techniques

STATISTICAL methods of quality control are useful in all types of mass production. A striking illustration of the truth of this statement is provided by the diversity of situations in which these methods have been applied in Western industrial plants during the past three years.

In the Los Angeles area these techniques have been applied successfully by large airframe companies (particularly Lockheed, Northrop, and Vultee Field Division of Consolidated Vultee) to such different matters as dimensions of machined parts, strength of spotwelds, defects in sheet metal work, magnetic inspection of bolts, and "squawks" in sub-assemblies and final assemblies. Suppliers of products to the aircraft industry have applied the methods to such diverse quality characteristics as on-and-off temperatures of thermostatically controlled devices, concentricities of AN hose fittings, dimensions of parts produced by plastic molding, dimensions of parts produced by automatic screw machines, defects of forgings, and determination of economic tolerances for dimensions of mechanics' hand tools.

The applicability of the methods in the canning of fruits and vegetables has been demonstrated by their use during the past two years by the Sutter Packing Company of Palo Alto in the control of filling weights and other quality characteristics. Their applicability in the milling industry has been demonstrated in plants in the Pacific Northwest. Heintz and Kaufmann in South San Francisco have applied the methods to the production of vacuum tubes. In the East Bay they have been applied with advantage to the production of pharmaceutical products and chemicals. In Ogden, Denver, and Fontana, as well as in many other places, they have been applied in the inspection of ammunition and other items of ordnance material.

Before the war, these methods, originated twenty years or so ago by the Bell Telephone Laboratories, had been used chiefly in electrical manufacturing, at certain government arsenals, and at certain plants in the textile industry. The great expansion of their use during the war demonstrated their broad usefulness for reducing costs of spoilage and rework, for

By EUGENE L. GRANT
Professor of Economics of Engineering,
Stanford University

obtaining better quality assurance for the inspection dollar, and for generally bringing about better coordination between design, production, and inspection. The methods seem destined for even greater use in meeting the problems of post-war competition. Four different statistical tools have proved particularly useful in reducing costs and improving product quality. These are:

1. The "X (X bar) and R" chart or Shewhart control chart for any quality characteristic which can be measured.



• Tasks such as grinding gates in a plastic mold at the Plastic Die and Tool Corporation plant, Los Angeles, are much improved by new statistical quality control methods.

2. The "p chart" or Shewhart control chart for percent defective.

3. The "c chart" or Shewhart control chart for number of defects.

4. Acceptance procedures which make use of the laws of chance in a way which gets the best possible quality assurance out of sampling inspection.

The X and R charts may be applied to anything which can be measured, such as dimensions, hardness in Rockwell units, operating temperatures in degrees Fahrenheit, tensile strength in pounds per square inch, percent of a particular impurity in a chemical compound, weight in ounces of the contents of a container, time in seconds of the blow of a fuse, life in hours of an incandescent lamp. Despite their simplicity of calculation and plotting, these X and R charts sometimes seem almost magical in their ability to point at once to the action necessary to remove sources of trouble. This is particularly true where the charts are interpreted by someone familiar with both the chart principles and the production process.

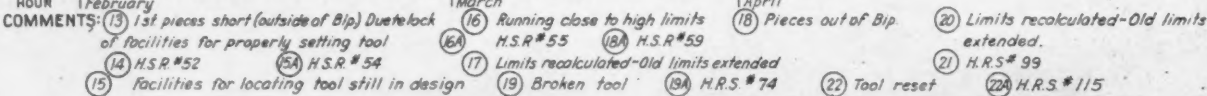
The X and R chart gives three types of information about a process, namely:

(1) Its centering. For example, the average value of a dimension, or of the shear strength of a spotweld coupon, or of the drained weight in ounces of a can of tomatoes.

(2) Its spread, in terms of the amount of variability which is unavoidable with given machines, materials, and operators.

(3) Its consistency with respect to both centering and spread. The charts tell whether the changes in samples from hour to hour or from day to day are merely chance differences such as are inevitable in any stable production process, or whether they really indicate assignable causes of variation which can be found out and corrected.

In one instance, the X and R charts may put pressure on production to pay closer attention to machine settings. In another, they may take the pressure off production by demonstrating clearly that the tolerances are closer than can be met by current production methods, and thus presenting a choice among changing engineering designs, making fundamental changes in production methods, or relaxing tolerances;

WESTERN INDUSTRY—*March, 1946*

of Production Research and Development, War Production Board. This program consisted of eight-day full-time intensive courses given for key personnel of war industries in many industrial centers. The courses were offered under the Engineering, Science, and Management War Training financed by the U. S. Office of Education and were given in cooperation with different colleges and universities. The follow-up series of monthly seminars for the people who attended these intensive courses developed into local societies, one of which was the "Society of Quality Control Engineers of California." In October, 1945, these local societies consolidated into a national organization, the "Society for Quality Control."

This OPRD program was headed by Dr. Holbrook Working of Stanford University. The eight-day intensive courses and follow-up seminars given throughout the United States followed the same pattern as eight-day courses and seminars developed by Stanford University in the summer of 1942 as part of its ESMWT program. In fact, the adoption by the OPRD of the promotion of statistical quality control as a nation-wide project was a direct result of successful applications of these methods in southern California by men who had attended the Stanford course given in Los Angeles in September, 1942. These applications were at the Ontario Works of General Electric Company, at Plomb Tool Company, at Northrop Aircraft, and at the Vultee Field Division of Consolidated-Vultee. In a sense, therefore, the nationwide interest in statistical quality control is a direct result of successful applications on the West Coast.

In fact the influence of these courses extended even to Australia. Two representatives of the Australian government attended Stanford courses given in June, 1943. Courses on the same pattern were later given at the University of Melbourne, and statistical quality control techniques were used effectively in Australian war industry.

When in 1942 and thereafter, the suggestion was made to many manufacturers that they look into the ways in which statistical quality control techniques could be useful to them, a common reaction of inspection, production, engineering and management personnel was "But our business is different!" This was the reaction in the aircraft industry, in the chemical industry, in the milling industry, in the food canning and preserving industry, and in the container industry, in plants where successful applications later were made. In fact, it was a common reaction in plants in those very industries where successful applications had been made elsewhere. Sometimes even successful applications in adjoining departments of a plant did not prevent the "My business is different" objection being made by department heads.

To anyone who has seen the introduction of these methods in many different manufacturing plants, it is evident that no manufacturing business is really so "different" as to be unable to make some effective use of these techniques. Variation in product quality is inevitable; wherever variation exists, statistical quality control may be expected to be helpful. However, imagination and ingenuity, as well as a knowledge of the basic principles of statistical quality control, are likely to be required for each successful application.

ATOMIC BOMB PLANTS BUILT NEARLY AS QUICK

Gate-Way Manufacturing Co. of Los Angeles wanted to make door knobs for new houses, spent nearly five months trying to get a price decision out of OPA, and then all it got was "no." Gate-Way's time card on the proceedings, revealed in an NAM survey on price control, was as follows:

May 20, 1945: Asked local OPA what to do about prices.

May 21: Visited local OPA, got forms and instructions.

June 12: Mailed forms and exhibits to Washington.

July 9: Asked local OPA if there had been action.

July 11: Washington OPA wired: "Unable to determine jurisdiction."

July 31: Washington OPA asked for photos.

August 21: Photos and samples sent to Washington.

Sept. 3: Wired Washington OPA: "Production stopped, workers laid off."

Sept. 7: Washington OPA wired: "Expect decision next week."

Sept. 13: Washington OPA phoned: "What is kirkite? Send samples."

Sept. 15: Samples sent to Washington OPA.

Sept. 20: Wired Washington OPA: "Can we do anything to expedite?"

Sept. 28: Local OPA advised: "Keep pressing Washington."

Oct. 1: Local OPA asked if Washington had acted; wired Washington.

Oct. 3: Local OPA announced Washington had reached decision: a price exactly covering cost of materials and plating, about half competitors' price.

Oct. 12: Washington OPA, denied appeal for relief.

Note: Door knobs not being made.

pounds. American Smelting & Refining also has been interested in Troutdale.

Kaiser's interest in aluminum is due to the extreme shortage of steel which he needs both for his construction projects and his automobile manufacturing operations in Michigan and at the recently leased Long Beach, California, plant of Douglas Aircraft. Steel mills are reported to be booking orders now for 1947 delivery, and aluminum is now coming into use for roofs and siding for buildings.

For the Mead plant he has a five-year lease offer with option to purchase, calling for use of two potlines for the first year, at a rental of \$208,100 and \$260,000, respectively; three potlines the third year at \$468,000; four in the fourth year at \$728,000 and six in the fifth year at \$1,248,000. Each potline has an annual capacity of 36,000,000 pounds, so the total plant capacity is 216,000,000 pounds. Its cost was \$23,500,000.

Trentwood has a rated capacity of 24,000,000 pounds a year, and the lease calls for an annual rental of \$250,000 or 5 per cent of the gross sales, whichever is higher, with a down payment of \$360,000.

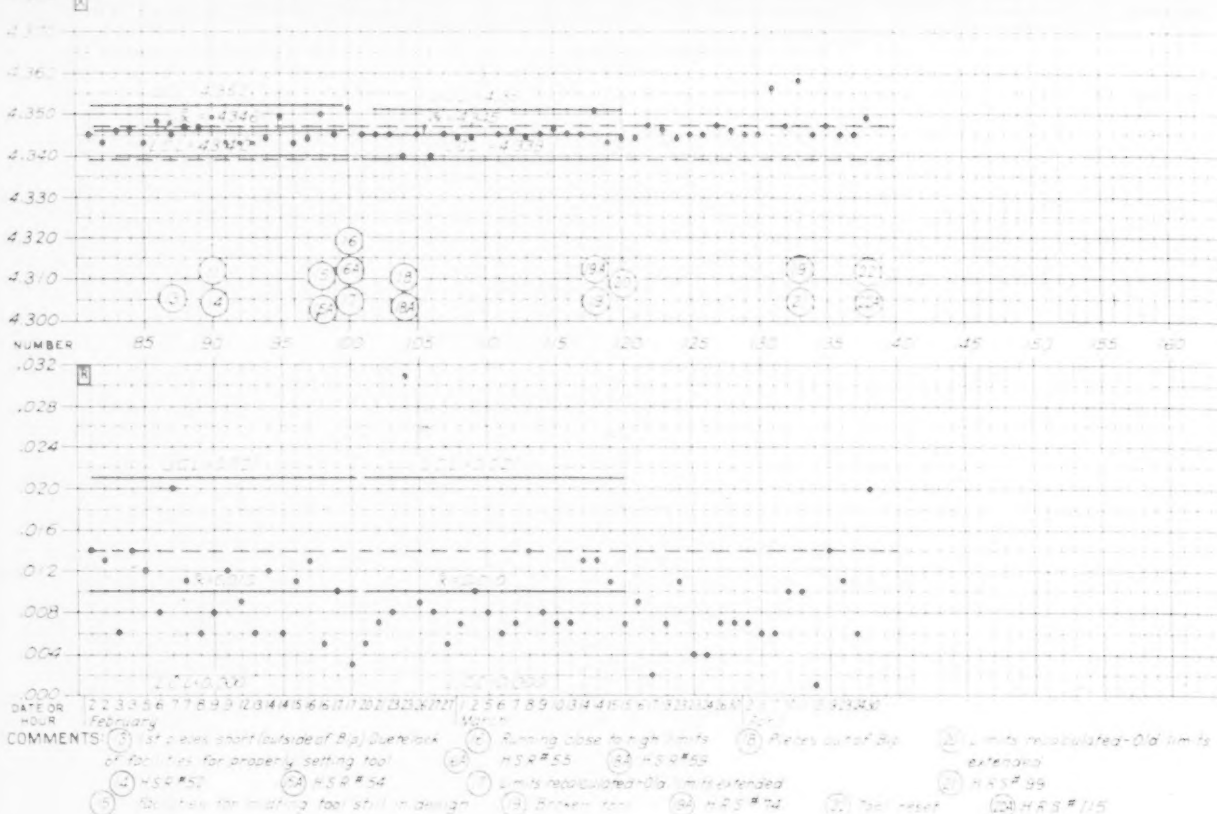
Aluminum Is National Game of Checkers . . .

A BIG national game of checkers is being played with aluminum. Reynolds Metals Company is on the verge of losing some of its newly won gains, Kaiser is rapidly and unexpectedly forging ahead, and Alcoa is still able to land in the king row at the most unexpected moment. At this writing the game stood as follows:

After the government had forced Alcoa to loosen its grip on the alumina patents, Reynolds got a secure source of alumina through lease of the Hurricane Creek plant in Arkansas. So, with the DPC-built rolling mill in South Chicago apparently within its grasp, Reynolds was leisurely talking about bidding on the Mead reduction plant and the Trentwood rolling mill at Spokane, and not too much concerned if it failed to get the latter.

And then one fine morning in February Reynolds woke up to find that Henry Kaiser had entered definite bids with RFC for Trentwood and Mead. Not only that, but Reynolds was in danger of having no rolling facilities except for a limited capacity at Lister Hill, Alabama, because Alcoa had bid \$30,000,000 cash for the South Chicago mill, a bid the RFC would be strongly tempted to accept, since the original cost of the mill was only \$45,000,000.

Unless Reynolds raises the ante, it may find itself in third place in the aluminum business. It can still bid on the Troutdale reduction plant near Portland, but it has only four potlines against Mead's six. Troutdale's annual capacity is 134,000,000



In another instance, they may point to the existence of inspection errors due to causes such as gage wear or unstandardized inspection procedures. In still another, they may show how product uniformity may be improved and the time of machines and operators saved by reducing the frequency of machine shutdowns. In packaging operations, the charts may reduce average overfill by making it possible to work closer to the minimum specification limit with safety.

Although the X and R charts may sometimes be applied to inspection data already being obtained for other purposes, it often happens that they will require special measurements for control chart purposes. The chart for percent defective, or p chart, on the other hand, may be applied to the results of any routine inspection, either 100% inspection or sampling inspection, which results in classifying each item inspected as accepted or rejected. For example, p charts are applicable to the results of all dimensional inspection conducted with GO and NOT GO gages. They provide information for management on the average quality level, and give information as to when and where to exert pressure for quality improvement. In some

instances the p chart discloses erratic fluctuations in the quality of inspection, and its use causes improvements in inspection practices and inspection standards. It may be valuable in dealing with outside vendors, as well as in inspection carried on in a manufacturer's own plant.

The c chart applies to the count of defects in complex assemblies such as radio sets, aircraft engines, or aircraft sub-assemblies. Its application to aircraft "squawks" proved helpful in standardizing inspection procedures. It is also applicable to data on other matters than product quality; for instance, it may be applied advantageously to industrial accident statistics.

The best concise explanation of how to make these three control charts and how to interpret them is given in a 40-page pamphlet which may be secured for sixty-five cents from the American Standards Association, 70 East 45th Street, New York, N. Y. This pamphlet, which was prepared at the request of the Army by a distinguished committee of engineers who are also statistical experts, is entitled "American War Standard Z1.5-1942, Control Chart Method of Controlling Quality During Production."

Another good source of practical information about the uses of the control chart is the series of twelve OPRD Quality Control Reports. These reports give detailed descriptions of many actual applications in fields ranging from the manufacture of steel, radios, Norden bombsights, and ball bearings to the mail order business. While they last, they may be secured by writing on your company letterhead to Office of Production Research and Development, Civilian Production Administration, Washington, D. C.

Two occurrences during the war were responsible for the rapid expansion of the use of statistical quality control techniques and for the great current interest in them which now exists in manufacturing circles throughout the entire United States. One of these occurrences was the use by Army Ordnance of engineers borrowed from the Bell Telephone Laboratories to develop the acceptance procedures used by Ordnance. These procedures were later authorized for use throughout the entire Army Service Forces and were applied to the product of many different manufacturers. The other occurrence, which probably had an even greater influence, was the statistical quality control program of the Office

of Industrial Research and Development, War Relocation Board. This program consisted of eight-day full-time intensive courses given for key personnel of war industries in many industrial centers. The courses were offered under the Engineering Science and Management War Training initiated by the U. S. Office of Education and were given in cooperation with different colleges and universities. The follow-up series of monthly seminars for the people who attended these intensive courses developed into local societies, one of which was the "Society of Quality Control Engineers of California." In October, 1945, these local societies consolidated into a national organization, the "Society for Quality Control."

This OPRD program was headed by Dr. Holbrook Working of Stanford University. The eight-day intensive courses and follow-up seminars given throughout the United States followed the same pattern as eight-day courses and seminars developed by Stanford University in the summer of 1942 as part of its ESMWT program. In fact, the adoption by the OPRD of the promotion of statistical quality control as a nation-wide project was a direct result of successful applications of these methods in southern California by men who had attended the Stanford course given in Los Angeles in September, 1942. These applications were at the Ontario Works of General Electric Company, at Plomb Tool Company, at Northrop Aircraft, and at the Vultee Field Division of Consolidated-Vultee. In a sense, therefore, the nationwide interest in statistical quality control is a direct result of successful applications on the West Coast.

In fact the influence of these courses extended even to Australia. Two representatives of the Australian government attended Stanford courses given in June, 1945. Courses on the same program were later given at the University of Melbourne, and statistical quality control techniques were used effectively in Australian war industry.

When in 1942 and thereafter, the suggestion was made to many manufacturers that they look into the ways in which statistical quality control techniques could be useful to them, a common reaction of inspection, production, engineering and management personnel was "But our business is different!" This was the reaction in the aircraft industry, in the chemical industry, in the milling industry, in the food canning and preserving industry, and in the container industry, in plants where successful applications later were made. In fact, it was a common reaction in plants in those very industries where successful applications had been made elsewhere. Sometimes even successful applications in adjoining departments of a plant did not prevent the "My business is different" objection being made by department heads.

To anyone who has seen the introduction of these methods in many different manufacturing plants, it is evident that no manufacturing business is really so "different" as to be unable to make some effective use of these techniques. Variation in product quality is inevitable; wherever variation exists, statistical quality control may be expected to be helpful. However, imagination and ingenuity, as well as a knowledge of the basic principles of statistical quality control, are likely to be required for each successful application.

ATOMIC BOMB PLANTS BUILT NEARLY AS QUICK

Gate-Way Manufacturing Co. of Los Angeles wanted to make door knobs for new houses, spent nearly five months trying to get a price decision out of OPA, and then all it got was "no." Gate-Way's time card on the proceedings, revealed in an NAM survey on price control, was as follows:

May 20, 1945: Asked local OPA what to do about prices.

May 21: Visited local OPA, got forms and instructions.

June 12: Mailed forms and exhibits to Washington.

July 9: Asked local OPA if there had been action.

July 11: Washington OPA wired: "Unable to determine jurisdiction."

July 31: Washington OPA asked for photos.

August 21: Photos and samples sent to Washington.

Sept. 3: Wired Washington OPA: "Production stopped, workers laid off."

Sept. 7: Washington OPA wired: "Expect decision next week."

Sept. 13: Washington OPA phoned: "What is kirkite? Send samples."

Sept. 15: Samples sent to Washington OPA.

Sept. 20: Wired Washington OPA: "Can we do anything to expedite?"

Sept. 28: Local OPA advised: "Keep pressing Washington."

Oct. 1: Local OPA asked if Washington had acted; wired Washington.

Oct. 3: Local OPA announced Washington had reached decision: a price exactly covering cost of materials and plating, about half competitors' price.

Oct. 12: Washington OPA, denied appeal for relief.

Note: Door knobs not being made.

pounds. American Smelting & Refining also has been interested in Troutdale.

Kaiser's interest in aluminum is due to the extreme shortage of steel which he needs both for his construction projects and his automobile manufacturing operations in Michigan and at the recently leased Long Beach, California, plant of Douglas Aircraft. Steel mills are reported to be booking orders now for 1947 delivery, and aluminum is now coming into use for roofs and siding for buildings.

For the Mead plant he has a five-year lease offer with option to purchase, calling for use of two potlines for the first year, at a rental of \$208,100 and \$260,000, respectively; three potlines the third year at \$468,000; four in the fourth year at \$728,000 and six in the fifth year at \$1,248,000. Each potline has an annual capacity of 36,000,000 pounds, so the total plant capacity is 216,000,000 pounds. Its cost was \$23,500,000.

Trentwood has a rated capacity of 24,000,000 pounds a year, and the lease calls for an annual rental of \$250,000 or 5 per cent of the gross sales, whichever is higher, with a down payment of \$360,000.

Aluminum Is National Game of Checkers . . .

A BIG national game of checkers is being played with aluminum. Reynolds Metals Company is on the verge of losing some of its newly won gains. Kaiser is rapidly and unexpectedly forging ahead, and Alcoa is still able to land in the king row at the most unexpected moment. At this writing the game stood as follows:

After the government had forced Alcoa to loosen its grip on the alumina patents, Reynolds got a secure source of alumina through lease of the Hurricane Creek plant in Arkansas. So, with the DPC-built rolling mill in South Chicago apparently within its grasp, Reynolds has leisurely talking about bidding on the Mead reduction plant and the Trentwood rolling mill at Spokane, and not too much concerned if it failed to get the latter.

And then one fine morning in February Reynolds woke up to find that Henry Kaiser had entered definite bids with RFC for Trentwood and Mead. Not only that, but Reynolds was in danger of having no rolling facilities except for a limited capacity at Lister Hill, Alabama, because Alcoa had bid \$30,000,000 cash for the South Chicago mill, a bid the RFC would be strongly tempted to accept, since the original cost of the mill was only \$15,000,000.

Unless Reynolds raises the ante, it may find itself in third place in the aluminum business. It can still bid on the Troutdale reduction plant near Portland, but it has only four potlines against Mead's six. Troutdale's annual capacity is 154,000,000

ARBITRATE—To Avoid Strikes

Strikes Are Abandonments of Reason Merging into Resorts to Force; Voluntary Arbitration Can Make Them Unnecessary

WITH a large percentage of the industry of the nation paralyzed by major strikes, all of us are asking how and on what basis they can be quickly and fairly settled; at what level should wages, costs, prices and purchasing power be established for the remainder of the reconversion period? These are among the gravest domestic problems which confront our nation today and they deserve all the study and discussion which we can give to them.

Quite as important as any of these immediately pressing problems, however, is another question—through what means and what procedures can labor and management settle their disputes without constantly tying the nation's industry up by strikes or lockouts?

How Can Disputes Be Avoided?

The Labor Management Conference which met at Washington last November was confronted by exactly this problem. Though on many questions the conferees failed to reach agreement, they were unanimous in recommending that voluntary arbitration—arbitration agreed to in advance and controlled by the parties themselves—should be accepted by management and labor throughout the country as one of the most effective methods of achieving industrial peace.

Often only decision by an outside party is thought of when unions and employers are considering arbitration. And—again too often—they reject arbitration because it seems to involve the subjection of their integrity to the whim of an "outsider"—a relinquishment of both responsibility for and control over the settlement of the dispute. For that reason the importance of control of the entire procedure cannot be over emphasized. *Though voluntary arbitration does involve the submission of issues to an outside party for decision, it is nevertheless a procedure which can be entirely controlled by the parties themselves. They select the arbitrator; they decide what issues shall be submitted to him and what withheld from his jurisdiction; they determine his powers; they decide what procedures he shall follow. They are limited only by the requirement that, having by agreement done these things and established his powers and procedure, they must in good faith accept and abide by his decision. And that requirement is itself founded only on their own voluntary agreement.*

At present, voluntary arbitration is most widely used in connection with the settlement of grievances and disputes which arise under the terms of an existing agree-

By RALPH SEWARD

Umpire for General Motors Corporation and the United Automobile Workers, for interpretations under their existing contracts. Despite the strike, neither side wishes to give up this form of voluntary arbitration. Mr. Seward's talk was delivered under the auspices of the Food Processors' Foundation, College of the Pacific, Stockton, California, before a group of representative executives and personnel men.

ment. It is typically the final step in the grievance procedure. If employee John Smith, for example, claims that under the seniority provisions of an agreement he was improperly laid off, or that under the wage provisions he is being improperly paid, he will file a grievance. Typically, that grievance will go through a number of stages of discussion between representatives of management and of the union—first, say with the foreman; then with the plant superintendent; then possibly with representatives of top management. If at that stage the grievance is still not settled or withdrawn, agreements are more and more frequently providing that it may be appealed to arbitration and that the decision of the arbitrator shall be accepted as final and binding.

Two Characteristics

Two characteristics may be noted in the clauses of the various labor agreements with regard to the arbitration of grievances. One is the wide variety in them, the great differences which exist in the methods of choosing an arbitrator, the powers he shall have, the procedures he shall follow, and the types of awards he may issue. The other is the vagueness of many such clauses, the failure of the parties in drafting them to set forth anything beyond a rough indication of the method of selection—and sometimes not even that. The first characteristic is itself evidence of the point made earlier—that where arbitration is voluntary rather than government imposed, the parties may tailor the procedure to suit themselves. The second is evidence that all too frequently labor and management are failing to take advantage of this opportunity.

What are the matters which the parties should consider in establishing a system of arbitration?

First is the question of the scope of arbitration, the powers which the parties wish an arbitrator to have, the types of issues which they are willing to submit to him. Do they wish to let the arbitrator rule only on the interpretation of certain

clauses of the agreement? Do they wish to let him interpret the entire agreement? Do they wish to let him go beyond the agreement and arbitrate questions which it does not cover? Do they wish to let him alter it, in certain respects, as for example by allowing alleged intra-plant wage inequalities to come to him for consideration and, if the inequality is proved, for correction? When he finds a violation of the agreement, what may he do about it? What remedies may he award? And so forth.

One Extreme

As an example of one extreme, the writer once arbitrated a case between a large steel company and a local of the United Steel Workers of America in which both sides presented to him a copy of their contract, an agreed statement of the facts, two argumentative briefs, and two alternative decisions written out in advance by the parties with the direction that, on the basis of a reading of the contract, the agreed statement of facts, and the briefs, he should sign one of the two decisions.

That is, of course, an example of the most restrictive type of arbitration which it would be possible to establish. It was, the writer submits, entirely sound for that company and that union because at that stage of their relationship, it was what they wanted.

As an example of the other extreme, the writer was for a time Impartial Chairman of the New York milk distributing industry, arbitrating under an industry-wide contract signed by five different local unions and almost 200 separate milk distributing companies. Under the terms of that contract, the Impartial Chairman had the power not only to arbitrate disputes arising under the agreement and involving an interpretation of its language, but also to hear and finally determine *any dispute* of any sort arising between any company and any one of the local unions. He had the power at that time not only to decide grievances but also to lay down rules and regulations for the conduct of the business of distributing milk in that area—to set the hours at which milk drivers might leave the plants, and within certain limits to regulate the amount of milk which an individual driver might be required to carry. He had the power not only to award remedies for violations of the contract, such as the reinstatement of employees with back pay, but also to award damages and in some cases fines and to issue what amounted to injunctions governing the future conduct of the parties which were potentially enforceable in the State courts.

No one would suggest that it was gen-

HOW LABOR AND MANAGEMENT CAN SETTLE THEIR DIFFERENCES

"When collective bargaining fails, when neither by their own efforts nor with the assistance of state or federal conciliators, can management and labor representatives agree—there are only three alternatives.

- 1) The resort to a test of strength by a strike or lockout;**
- 2) The settlement of the dispute by government intervention, or**
- 3) The settlement of the dispute by some impartial machinery established by the parties themselves.**

This is elementary, yet it is of fundamental importance. If, on the one hand, we wish to avoid strikes, and if, on the other hand, we wish to avoid the establishment of a system of compulsory settlement under government auspices, management and labor must provide their own settlement machinery — must agree, in other words, to voluntary arbitration.

What is voluntary arbitration? In its simplest form, it is the process of submitting a disputed issue for final determination by an impartial individual who is chosen by agreement of the parties, who derives his power and jurisdiction from the parties, who operates under rules established by the parties, and whose decision the parties voluntarily bind themselves to accept. It has, thus, two aspects: (1) the decision of the disputed issue by someone other than the parties to the dispute; and (2) the control by the parties of the entire procedure which leads up to the decision."

erally wise for management and labor to vest in any individual third party such broad powers over the conduct of a business. In that situation, however, it was sound because both the industry and the unions had studied the problem and decided that for the period of their contract it was *what they wanted*.

At General Motors, the powers of umpire fall between these two extremes. The umpire is limited by the agreement of the parties to the function of interpreting and applying to individual cases the language of the master agreement between the corporation and the United Automobile Workers and of the various local agreements covering wages, seniority and other matters which are separately negotiated at each plant. Over questions not covered by the contract, the umpire has no jurisdiction. He is, moreover, expressly forbidden to add to, subtract from, or in any way alter through his decisions the language of any such agreements.

Again the writer submits that though many other companies do things differently, for General Motors and the United Automobile Workers, this system is sound because they have studied it, experimented with it, and decided that it is *what they want*.

Other companies see disadvantages in

having permanent arbitrators. There is the undoubted danger that if an arbitrator is already hired and sitting in his office waiting for cases, both parties may relax in their efforts to settle disputes themselves and may refer cases to him which could have been settled by further collective bargaining. A permanent umpire may prove too expensive for some companies or local unions to afford. There may be a tendency, moreover, for a permanent arbitrator, by the very fact of his permanency, to develop more power and influence over the conduct of labor relations between the company and union which hire him than either party desires.

Do the parties wish a single arbitrator or a board of arbitration with representatives of the union and company on the board and with an impartial chairman casting the deciding vote? Both systems are frequently used. Both have advantages and disadvantages. If it is only the quasi-judicial function of interpreting an existing agreement, the single arbitrator may be preferable. If it is the task of ruling on proposed changes or alternatives in an agreement, the tripartite system may be preferred. On the one hand, the tripartite system makes for increased practical knowledge of the matter in dispute. On the other hand it makes for compromise

decisions. Compromise should have no place in interpreting an agreement, but it is often the most wise and realistic approach to the writing or altering of an agreement.

This brings us again to the question raised at the outset—is voluntary arbitration a means by which major industrial disputes, such as those which now paralyze the nation's industry, may be settled without resort to strikes or lockouts? By definition *voluntary* arbitration will only be resorted to if both management and labor agree. Admittedly—where disputes involve the negotiating rather than the interpretation of a contract—agreement to arbitrate has been rare. Nevertheless it is the writer's firm opinion that once management and labor realize the extent of their own power over the arbitration procedure—their joint ability through collective bargaining to mould the system to suit themselves — a considerable measure of their opposition to it may disappear. That at least is the writer's hope. For it is in these developing provisions for voluntary arbitration that lie, in his opinion, America's greatest chance to avoid strikes and lockouts while still preserving the individual responsibility of employers and unions for the management of their affairs which is the basis of a free economy.

Westerners Have a Stake in Prosperity of the Philippines

But Federal Action, or the Lack of It, Hampers the Return of That Prosperity, Thus Slowing Resumption of Western Trade

ECONOMIC and financial conditions in the Philippine Islands have reached a critical stage, and this situation is of immediate and long-term interest to all the industries in the West. The core of this situation is the dilatory tactics of the U.S. Government in delaying action on the Philippine trade relations bill, and the bill to provide for the payment of war damages suffered by business, industry and agriculture, and the Commonwealth Government in the Philippine Islands.

This situation is of greatest importance to the immediate and future trade relations between the Philippine Islands and the United States, especially the West Coast. The rehabilitation and restoration of business enterprises and the Philippines' export industries are awaiting favorable action on these bills for clarification of the commercial relations between the Commonwealth and the United States.

Immediately after liberation, emergency merchandise needs of the Islands were quickly supplied through large relief shipments, and only a few weeks following the expulsion of the Japanese from the Manila area, private shipments began to move to the Islands, mostly from Pacific Coast ports. From that time on, a steady stream of foodstuffs, clothing, medicinals, pharmaceuticals, some acutely needed machinery and mechanical items have been on their way to the Islands.

Naturally, under such chaotic conditions as existed in the Islands, a number of factors developed which are slowly, but

By ALVIN C. EICHHOLZ
Manager, World Trade Department
San Francisco Chamber of Commerce

not quickly enough, being corrected. The uncertain financial situation has attained some degree of stability. Black market operations which have retarded the establishment of orderly distribution are gradually being brought under control. The scarcity of products and the abundance of money has resulted in extreme inflationary tendencies, the effects of which have not been entirely overcome to date.

Philippine Market Important to West

The Philippine Islands have always been an important two-way market for the Western States, and Pacific Coast industries, needing foreign markets more than at any time in their history, need the important Philippine market. Its early restoration will contribute to an orderly expansion of Pacific Coast manufacturing, agricultural, lumbering, fishing and other important segments of our commercial structure.

Before the war, in 1938, the United States sold to the Philippine Islands goods valued at \$86,500,000, of which \$15,500,000 were supplied by the San Francisco district; \$7,000,000 by Los Angeles; nearly \$7,000,000 by Oregon; and \$5,800,000 by Washington. The Pacific Coast total, therefore, was \$30,300,000, or nearly 35 percent of the U.S. total.

On the import side, the United States, because of its preferential trade arrangements, was the most important market for Philippine goods. Our total purchases for 1938 exceeded \$94,000,000, of which San Francisco took \$7,700,000; Los Angeles, \$6,000,000; Oregon, \$2,300,000; and Washington, \$2,900,000. The Pacific Coast total was \$18,900,000, or 20 percent of the U.S. total. Thus, it is quite apparent that the Pacific States and the Philippines are outstandingly important to each other.

During the last few months the bulk of Philippine needs and requirements have been shipped from Pacific Coast ports, and for a number of reasons the Philippine Islands look to the Pacific Coast for a sympathetic understanding of their problems and for consideration in supplying their critical needs at this time. At the present moment practically every commodity in between needles and locomotives is in demand in the Islands and practically all of the Philippine needs are manufactured and produced in one or more places in the Western States.

Western manufacturers must immediately recognize the critical nature of this situation and especially endeavor to supply now, and in their own interest for the future, the requirements of the Philippine Islands. Wartime industrial developments in industry and expansion of the existing Pacific Coast industries make available from our factories, canneries and forests practically every item required for the Philippine economy.

Controls Relaxed Early

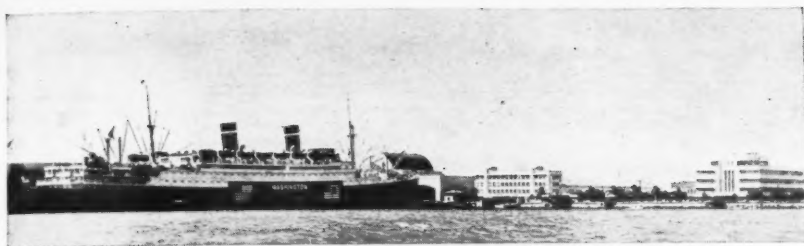
At the outset, our Government expressed the desire that it preferred to have private business supply the Philippine needs in order that Government agencies would not have to do so. The early regulations instituted conformed to export controls in force elsewhere and were designed to regulate financing and other factors of specific interest to the welfare of the Islands.

These have been relaxed steadily as conditions warranted. The Registry Number System required for all imports into the Islands was cancelled January 1st. Exporting to the Islands today is in general approximately the same as before the war.

Shippers of the Pacific Coast have a distinct advantage over Eastern and Gulf

• Restoration of the Philippine economy means the revival of Western interests such as this, the San Mauricio mine, managed by the Marsman companies operating out of San Francisco. It will mean greatly widened markets for the products of Western plants.





• Though plenty of shipping space is now available for traffic between the West Coast and the Philippines, and while Manila port facilities, such as those shown above, are partially repaired after shell and bomb damage, extensive aid to the Philippines must yet be made by our government if a healthy trade, like that before the war, is to return.

ports because of close proximity, and rapidly restored steamship services have provided the opportunity, not only of quickly establishing or reestablishing themselves in the Philippine market but of making an even greater contribution in the rehabilitation job to be done.

Our government has been steadily expanding the allocation of materials in short supply to meet the Philippines' critical needs. Only foodstuffs, cotton textiles, a few electrical items, and a few chemicals remain under export license control, and these are being removed as greater quantities become available throughout the country. Practically everything else may move without control and Western manufacturers should make important portions of their production available to the Islands.

Ample Shipping to the Islands

Shipping space for exports of private shippers to the Philippine Islands is abundant, and there is every indication that the needs within the Islands will be met. As a matter of fact, the volume of shipments that has moved from the Pacific Coast ports in particular has been of such size as to create in some instances an oversupply of certain products in the Islands.

This temporary condition is brought about principally because of the lack of transport facilities in Manila and inter-island shipping, to distribute the goods to the other cities and islands throughout the Commonwealth. This local transport situation is critical, although the military forces have made trucks and some marine craft available to alleviate the critical situation. While there have been a few cancellations of orders recently, it is felt that in a short time market conditions will be more orderly and settled.

Financial Conditions Temporarily Good

The financial situation within the Islands, insofar as paying for immediate imports is concerned, might be considered good. Not only has there been a plentiful supply of dollars largely through the large payments of the military forces, but old, established trading firms in the Philippines have underwritten many of the original shipments, and letters of credit are freely established to meet daily requirements. Money in circulation today is four times that before the war.

For West Coast manufacturers, a word of caution might be offered regarding the establishment of connections in the Islands. A recent report indicates that there are now about 300 import firms situated in Manila. A large number of these are made up of Filipino citizens, individuals formerly in the employ of American firms there, and others who have capital at this time but little experience and might be looked upon as opportunists. Careful checking should be made in every instance as to historical background and financial ability of these firms.

War Damage Provisions

The financial situation within the Islands will become further stabilized when our government makes certain advances and loans to the Commonwealth and provides in the war damage bill for certain Philippine Treasury reimbursements. Philippine Government finances must be rehabilitated also to lend needed stability. Furthermore, a key to the Philippines' financial condition is the quick restoration of her export industries. Only through the export of her products can a steady supply of funds be provided to pay for her enormous purchases that the restoration and rehabilitation will require.

There are many problems in connection with this, such as transporting copra, hemp, sugar, tobacco, and other products from production centers to shipping points. Furthermore, Philippine workers are slow to return to these former occupations because of the ease with which they can find lucrative employment in other temporary quarters. The serious phase in clarifying the situation through our delay in passage of the trade relations bill and the war damage bill is that most American firms are very reluctant to rebuild and restore various buildings and business enterprises until they are assured of reasonable security before making investments of large amounts of private capital.

Situation Critical

In conclusion, the situation is critical; West Coast industries have a tremendous stake in the future of the Islands. Politically and for other reasons, the United States not only has a great responsibility to the Islands but a great interest in their restoration, as they are the key to our position

in the Far East. If we fail them at this crucial time our standing and prestige in the Pacific Area will suffer.

West Coast business and industrial organizations must immediately make this situation known to their Congressional representatives, in order that legislative action be taken without further delay. The San Francisco Chamber of Commerce has recommended passage of both measures. High Commissioner Paul V. McNutt is now in the United States for the purpose of urging the Congress to act immediately.

Western business interests must now recognize this situation and in the interest of the future stake they have commercially in the two-way trade between the Pacific Coast and the Islands, win the good-will of the Filipino people by fully informing themselves of the current critical situation and aggressively bringing about the passage of the desired legislation to enable immediate steps to be taken to restore the economy of the Islands.

Current Survey For Idaho Resources

A running inventory of the resources of the state of Idaho is in preparation by the Idaho State Chamber of Commerce for the use of industry interested in obtaining up-to-date data on the state.

The inventory is to be in loose-leaf form and will include the latest information developed by local chambers of commerce, independent surveys, reports of market analysts, and the various agencies of the state and federal governments.

All data in the beginning stages of the inventory is to be kept on a county basis, but as the work progresses it is intended to refine the material so far as to permit the inclusion of municipal data.

Specifically the work will cover agricultural, mining, forest, hydro-electric and other natural resources, as well as production records, data on industrial sites, transportation, freight rates, electric power costs, taxes and any other information essential to industry.

Supervision of the work will be under the direction of Earl W. Murphy, secretary of the chamber, and Floyd West.

Crabs For the Commissars

Completion of the conversion of an old Russian freighter, the Alma Ata, into a modernly equipped floating cannery for the Soviet government is due in a few weeks at the yards of the Northwest Marine Iron Works in Portland. Originally begun under the lend-lease program, the job is now being carried on under a direct contract with the Russians. The ship will carry 600 workers and will be manned by a crew of ten. It is to be used for catching and canning crabs and will operate out of Vladivostok.

Pallet Pool Formation Slated As Big Business

NOT IF, but when it comes, for it is a highly logical development, the formation of a pallet pool will be a big business with upper case letters all the way.

Just how big it will be appears in the present guesses that are whispered among top flight materials handling men and that now and then are murmured in the inner recesses of some of the nation's largest banks. These guesses range all the way from \$2,000,000 to \$30,000,000 as the amount of capital needed to get the venture under way.

Reason Why

Reason why a pallet pool should be formed is that, efficient as pallets are in cutting materials handling costs, a shipper to use them must now be able to get them back for re-use. Unlike the government at war, manufacturers at peace cannot regard pallets as expendable. With a national pool, a shipper sending goods on pallets

from Los Angeles to Chicago would not have to leave them there, sell them or pay their freight back, any one of which would be economically impossible. Instead, the pool would assign them to some other shipper.

Some evidence of the interest existing in forming a pool is found in the fact that McKinsey and Company, one of the big time management consultant firms, has quietly conducted an extensive survey to determine the need of such a venture. Furthermore, David Pursley, lately a lieutenant commander in the Navy, who had a great deal to do with the Navy's tremendous use of pallets during the war, has been devoting practically all his waking hours since he got out of the service to the study of just how and why such a pool could be formed.

Pursley's interest gains added significance through his being given use of the facilities of the Lawrence Warehouse Com-

pany, one of the leading firms in its field in Northern California.

Pool's Ramifications

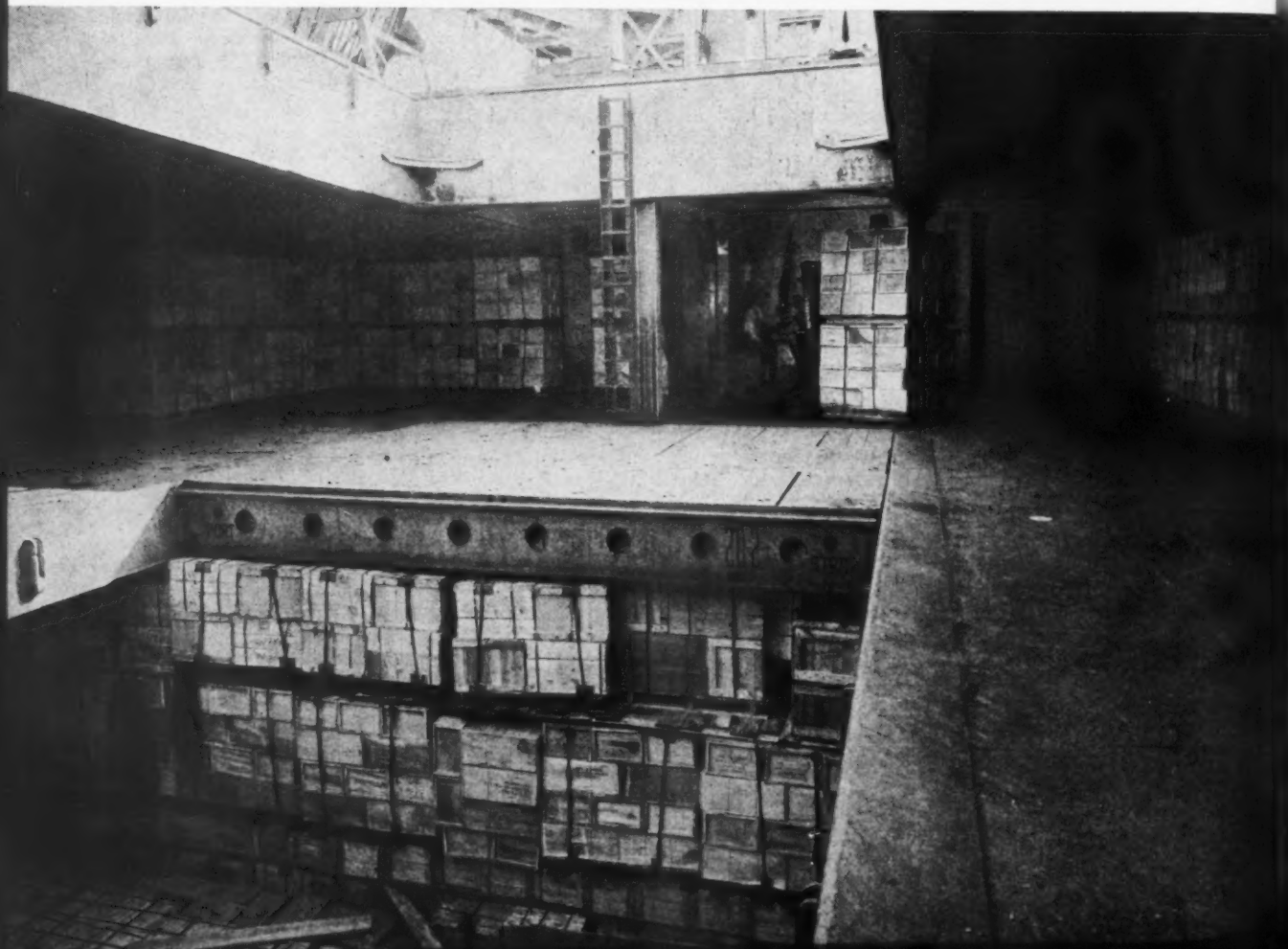
Reason for such sums to get the pool started as those mentioned above lies in the complications that hedge about the use of pallets.

Simple as pallets are in themselves, and it is difficult to conceive of a device much simpler, their use has complications that go far beyond the national field. With the resumption of overseas trade in a quasi-peaceful world it is inevitable that they will be used in international trade. As a result, the formation of a pallet pool is bound to have international ramifications of an extremely complex nature.

But extent of the geographical areas into which palletized materials will be shipped does not cause the complexity of the problem of forming the pool.

That springs from several incidental problems all of which are of great though

*** In this shipment from a West Coast port the Navy demonstrates overseas shipments of palletized cargoes without wasted space. Formation of a pallet pool will mean an eventual use of pallets for peacetime overseas shipments, thus making the pool international.**



varying importance. Of these problems the one that will probably demand the most immediate solution is that of ownership of the pallets.

While it might be possible for the pool to operate without being the owner of the pallets, all indications are that it will have a greater chance of success if it does own them.

Standardization

Ownership would result in a quicker standardization of pallets, one of the big bugs in the business, and should greatly simplify the whole job of operations, making vastly easier the determination and collection of charges. To acquire ownership of the pallets now in use throughout the country, or that portion of them that would be necessary to the operation of the pool, a substantial sum of money would be necessary. Just how large it would be those who are most sure aren't saying. In any event the expectation is that it will require a goodly percentage of the capital of the pool firm whether that capital were \$2,000,000 or considerably more.

Along with acquiring ownership of the pallets it is to use, the pool would be faced with other questions, none of which will be particularly easy to solve. These include such matters as the task of setting up an organization, at least national in scope, to operate the pool efficiently; the development of clearing houses for pallets; development of a sales force, and a department that will work improvements in the adaptation of pallets to carriers such as railroad freight cars, trailers and the holds of ships.

Pallet Weight

One problem of particular interest to those attempting to form the pool is concerned with the reduction of weight of pallets and their standardization. Right now the pallet world is pretty much of a hodge-podge of different pallet sizes made from a variety of materials.

The Navy, greatest user of pallets to date, has been manufacturing them here in the West at disciplinary barracks such as those at Camp Shoemaker, California and Farragut, Idaho. Using hardwood shipped out from Tennessee, it has fabricated extensively a pallet that averages 125 pounds in weight. Another it has made of Douglas Fir has averaged about 111 pounds.

Each of these has proved satisfactory for use of the Navy. They have proved satisfactory for use by private firms, too, who got them from the Navy, loaded them up and sent them to the designated destination. But since the Navy or rather the government paid the freight on the pallets as well as the material they carried, the private firms using those pallets would rather have something lighter when they have to pay the bills themselves.

Accordingly, right now, there is a ferment of activity going on in the pallet

business, all of it pointing to lighter weight without a sacrifice in strength. Even the paper companies are bringing out a fibre board pallet that is now more than an experiment.

As anyone might expect, light metals fabricators are very much on the "qui vive" in an effort to come out with something that will prove the answer to the prayers of materials handling men. The Union Metal Company of Canton, Ohio, which manufactured a steel pallet for use of the armed forces during the war is now reportedly to bring forth another steel pallet of light construction that will give the woodworkers a run for their money.

Among the fabricators of aluminum and magnesium, pallet possibilities seem to be in very much of a hush-hush stage. Indications are, however, that such firms as Reynolds Metals Company are decidedly interested, and, of course, the name of Henry J. Kaiser is not out of the picture. Ironically, though it may be only the vaguest rumor, it has been said that the Kaiser interests are regarding possibilities of forming a pallet pool with more than a mild curiosity.

Pallet Engineering Co.

But that is purely an aside. Still further evidence of the drive towards better designed pallets of lighter construction which will eventually result in their standardization is the formation of the Pallet Engineering Company in San Francisco.

This organization, headed by N. M. Bryson, recently a naval lieutenant serving as materials handling officer of the 12th Naval District, designs and orders pallets for those firms seeking its services.

According to Bryson, the pallet that will probably have the highest average use for industry in the West will be made of Douglas fir and will average in weight only about 90 pounds. Though that is considerably lighter than the navy pallets mentioned above, Bryson expects that weight of these wooden pallets will be further decreased as time goes on.

Bryson, who has applied for a patent on the adjustable safety ramp shown in an accompanying illustration, while at present non-committal on the use of pallets fabricated from light metals, says that though cost of their manufacture in the near future may be so high as to restrict their use considerably, they should eventually be produced for general use at a price that will enable them to compete satisfactorily with those of wood now selling in the \$2.25 to \$4.25 range.

Just how important the weight of the pallet is, is immediately apparent to shippers who have to pay fully as much freight per hundred weight on the pallets themselves as on the commodities carried on them.

In use of pallets for shipment of goods overseas the question of pallet weight is not of such importance as the problem presented in the stowage of cargo. Maritime



• Adjustable Safety Ramp

men apparently feel that stowing cargo for peacetime shipments is cheaper when the cargo is not palletized than when it is, regardless of the extensive shipments of goods on pallets made during the war.

At any rate such a firm as the Hawaiian Pineapple Company in Hawaii brings its products to shipside loaded on pallets. The loads are then removed, stowed in the hold and brought to United States where, likely as not, they may be palletized again for shipment to their ultimate destination.

Reasons for this procedure ostensibly lie in the fact that the upward sloping sides of a ship make it impossible to fill a hold with palletized material. Consequently, if palletized goods are used, some, not on pallets, would have to be used in the space against the sides of the ship.

Since, however, this problem did not prove insurmountable to the navy, it is likely that it will be solved in civilian operations as well. Palletized material moves faster in the hands of longshoremen, so much so that a considerably smaller number of men can move a given amount of goods in a time no longer than that required for a larger crew. And even though union policy might prevent the use of the smaller crew in such circumstances, time and motion studies are said to show that a given crew will move a larger amount of goods, palletized, in a shift than they could in the traditional way.

Increased Handling Ease

This increased ease of handling, natural enough, is the chief reason for existence of pallets. Though there are many cases in which the costs of pallets, added to the costs of binding the load to the pallet by means of glue or strapping, plus the freight costs on the pallets themselves, all combine to offset the advantages received from lower handling costs, there is little doubt that the near future will see such improvements as to expand the uses of pallets tremendously.

Realizing this, the lads who have venture capital—and there are plenty of them—and who also know that the fields are pretty well limited in which venture capital can venture today with any substantial expectation of a good return, are quite justified in giving it their full attention.

Implications of the Oil Tidelands Battle

Despite the Pauley-Ickes Battle, the Trend Is Toward Federalization in Both Parties

THE hearings in Congress on the bills to quiet title to tidelands will last well into February; and the recommendations may not be reported to the Congress until March.

On the eve of the hearings it is apparent those fighting to maintain the rights of the States to tidelands, and what goes with them, will make an imposing showing. Attorneys General are here from at least 40 States, and the Governors and former Governors from almost the same number. Their presence itself will be a powerful argument in favor of quieting title.

You people out there, who are affected by what may happen if the lands are turned back to the Federal Government should not be satisfied to settle back in the usual inertia in the event the recommendations coming out of the hearings are favorable to your cause. The real battle will be fought on the floor of the Congress, and it is difficult at this writing to determine what may happen.

There is a definite tendency to make the issue a strict party fight, which means that most Republicans may do what they can to embarrass the Administration by voting for the Federalization, and that they will carry in their wake the anti-Administration Democrats. The trend towards Federalization apparently stems strongly from the collectivists of the Right as well as the collectivists of the Left. This Federalization measure therefore may not be judged in some quarters purely on the equities involved, but in the light of its worth in the cumulative effort to build up Federal title to public resources of all kinds everywhere, tangible and intangible.

Ickes obviously is the leader of the effort to Federalize the submerged lands or tidelands. Originally Ickes appeared to be with those who sought to quiet the title in favor of the States. The Washington opinion most broadly held is that he changed his mind when the name of Pauley persistently became current as a contender for his Interior job. It is not clear whether Pauley actually was a contender, or whether his name was used as

By ARNOLD KRUCKMAN

a natural effect of the driving desire to get a real Westerner into the office.

Ickes has been a continuous liability to the interests of the West for years. He apparently has always been against something or somebody. He was brought to Washington as a candidate for the job of Commissioner of the Bureau of Indian Affairs. His pugnaciousness, his edgy championship of a minority, and his forthright attack on things, apparently made a hit with FDR. To his own amazement he became Secretary of the Interior. And he became hatchet-man for the Administration.

His lurid smash at Ed Pauley was logical for Ickes. He apparently does not like Pauley. He knew Pauley had been suggested for his job. The resignation of Undersecretary Abe Fortas, in the opinion of those who know their Washington, meant that Ickes definitely was counting the days when he must get out. Ickes has never been either a Democrat nor a Republican. He has been an Ickian. It probably was all one to him whether his testimony against Pauley helped the Republicans or hurt the Democrats. It gave Ickes a chance to slug, politically, an opponent; and it particularly gave him the grand strategic opportunity, which followed his attack on Pauley by a few days, of raising the oil screen over the imminent tidelands hearing.

It was oil which made the Senators jittery about Pauley; and it is oil which vaguely is applied to give the tidelands discussion a sinister smear. Bear in mind, Ickes apparently has developed the technique of the political smear to a degree almost unique. His letter of resignation with its harking back to the days of Albert Fall and the Teapot Dome oil scandal is a case in point.

Now, of course, it is still possible that Pauley will be confirmed. The performance by Senator Brewster, and others, in the hearings, has not inspired respect. The worst they could evoke by direct statements or implications was so mild, compared to the yarns one has been hearing about other political campaign panhandling by the Republicans as well as by the Democrats, that the Brewster suit leaves

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry at the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

one cynical but unmoved. The trouble is that Pauley is an amateur. The people who sold the special privilege cards for a \$1,000 contribution to the Democratic fund in the last campaign, with specified access to the White House, were professionals.

Pauley is a good man, with a sound code, and with abilities needed in these times in government. The unmerited abuse to which Pauley has been subjected is unhappily partly his own fault. He has no real sense of public relations. His experience is a serious matter because it will inevitably prompt other men who should rally around Harry Truman to refrain because they do not wish to be similar targets.

Here in Washington we regard the current strike-labor-political picture puzzle chiefly an effort to create the background for the eventual acceptance of broader collectivism in Government, economics and sociology. Leon Henderson's crowd, surely not conservative, point out that the strikes are NOT purely economic because economic demands come second, political objectives first.

They point out: "from now on, those union activities which are controlled by followers of the Communist Party line will be aimed more directly toward such ends. This forecasts a new squeeze on employers, because many of the demands aren't within the power of management to grant—as, for example, the National Maritime Union strike in December, lasting one day, which was called to force the return of troops from overseas."

We are told to remember that during the war the Communist Party Line was focussed ardently to convince us that strikes of any kind were evil. Now, party publications regard the CIO wage campaign as wishy washy. The successor to Browder, William Z. Foster, present Communist spokesman, leader of the 1919

(Continued on Page 44)



Let Us Help You Get "Geared Up" For Competition

Many of our war products customers saved themselves headaches and dollars by bringing to us early, their problems of gearing and mechanical power transmissions.

Here at Western Gear Works and Pacific Gear and Tool we have a pool of designing talent and engineering "know-how" that goes far beyond the making of gears. We have men who have dealt with and solved hundreds of mechanical power transmission problems in connection with plant designs, manufacturing procedures; gearing boxes and transmissions within finished products from airplanes to toys. Thus we consider thinking, planning, designing and gearing "know-how" as part of our stock in trade.

Use this "specialized" engineering service to help you develop your own ideas faster. Write, wire, or phone for immediate engineering counsel.

**PACIFIC
GEAR & TOOL WORKS**



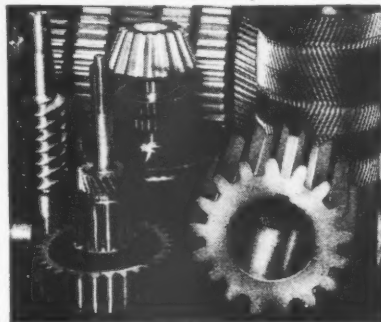
**WESTERN
GEAR WORKS**

PACIFIC-WESTERN

GEAR PRODUCTS

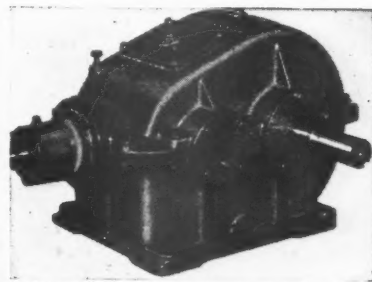
Plants and Offices: SEATTLE, SAN FRANCISCO, LOS ANGELES, LYNNWOOD
Sales Representatives: Portland, Salt Lake, New York

GEARS—for every need



Four conveniently located Pacific-Western plants are equipped to turn out a wide range of gears—continuous tooth herringbone gears, hob cut herringbone gears, helical, spur, spiral, worm, hypoid and zerol bevel gears.

PACIFIC-WESTERN SPEED REDUCERS



Right Angle Double Reduction Speed Reducers are available in two types—with spiral bevel gears or with worm and gear arrangement. Pacific-Western Speed Reducers are available for ratios of 2:1 to 300:1; for transmitting from fractional horsepower to 1,500 h.p., in standard units. Larger special units available upon request. Full range of sizes are available in single, double and triple reductions with single or multiple power takeoffs.

KRUCKMAN (Cont'd from p. 42)

steel strike, has called upon the CIO to go on the offensive. The object is nationalization of General Motors, General Electric, U. S. Steel, and other basic industries.

Broadly, the picture, as seen here, is regarded as indicating that a tough, showdown conflict is developing, regardless of apparent softening here and there; regardless even of gestures apparently intended to mean anti-strike legislation in Congress. The "fact-finding" bills; the Burton-Ball-Hatch bill; the Hobbs, the Byrd, and the Smith-Arends bills, are not believed to have any chance.

The only bill which has had recognition in the Senate, including a sympathetic approval by a Senatorial Committee, is the proposal by Senator Morse, Oregon, to investigate the abuse of the excess profits tax carryback by corporations which engage in sitdown strikes. In other words, the Senate appears to be interested in legislation which will stop industry from fighting the unions.

People everywhere obviously had hopes there might be a solution for some of our troubles in the Government seizure of any strike-paralyzed industry. But we know, now, workers have, and will, refuse to go to work for Government unless they get the pay for which they are striking. And management, with the same pro-

priety, can, and undoubtedly will, withdraw its executive and supervisory leaders. In effect this would make the operation of the large industries impossible. The answer would logically be the nation's appeal to Congress, the demand that the people on the Hill do something about it. Congress regards itself as a representative Government.

Most of its members do not honestly think their private judgment, and their private consciences, have anything to do with their votes. They think they should do what the majority of their constituents want them to do. With the present swing to the collectivist Left or the collectivist Right, according to Washington opinion, it would be natural for Congress to devise some way by which Government could operate under an arrangement to pay the wages and run the industries, temporarily. And this might be a gradual approach to permanent nationalization.

CIO-PAC Sidney Hillman in public has warmly praised the President's policies. Under the rose, you hear from responsible CIO leaders that the word spread from headquarters is to make Secretary of Commerce Wallace the next President. They are certain they will capture the next Democratic National Convention, and they say frankly if by chance anything goes wrong they will run Wallace on a Third Party ticket and win.

Curiously enough, it is understood this is said to have the support of Stettinius, the UNO man from the U. S. Steel Corporation, and his industrial associates.

The Murray Small Business Committee plans to be in Southern California about February 18 to 22. Young John H. Tolan has come out of the Navy, and will precede the Committee and help to set the stage. San Diego is regarded as the ideal place to make a test in investigating the problems of a community which has been devoted to war industries and which is trying to find a way back to normal work-a-day life. It is apparently intended to use the results of the Los Angeles and San Diego hearings as a pattern and a yardstick to apply nationwide.

The War Stabilization Board recently ruled that 19,000 workers in New England should be raised to a minimum wage of 65 cents per hour. This is the first formal action. It is pertinent, because Congressman Hugh De Lacy of Washington recently gave the House the results of a nationwide survey which showed that approximately 57% of the people of management and industry in the Pacific West, including the inter-mountain region, as well as the Spanish Southwest, the Pacific Northwest, and the Coast States, all favored the 65-cent minimum wage rate, with an advance to 70 cents within a year, and 75 cents within two years.



FASTER ON SMALL ORDERS AND EXPERIMENTAL WORK

New Methods and Equipment Speed Gibson "Small Order" Department

Our SMALL ORDER DEPARTMENT facilities having been greatly increased . . . to handle the infinite variety of special springs, clips, wire forms, small stampings required during the war . . . GIBSON is now in position to offer manufacturers a SMALL ORDER and EXPERIMENTAL PRODUCTION service capable of

making almost immediate deliveries . . . with quality and uniformity equal to regular plant production. (Strict adherence to exact specifications assured by thorough inspections and tests. Moderate costs. (We will be glad to help on development work . . . or quote on regular production. Inquiries invited.

THE WILLIAM D. GIBSON CO.
1800 Clybourn Avenue • Chicago 14, Illinois

GIBSON-SPRINGS

(DIVISION OF ASSOCIATED SPRING CORPORATION)

SEND FOR COPY OF
"MECHANICAL SPRINGS
—THEIR ENGINEERING
AND DESIGN"

Floors Take a Beating . . . A Tough Maintenance Problem

PLANT superintendents agree that their floors take a beating. Walls and roofs are important, of course, but the area that bears the heavy load is that of the floors. In consequence plant floors present a maintenance problem that is virtually continuous.

Today, that problem has been accentuated in many plants because of the increasing use of fork trucks and palletized loads which put an overload on many floors.

For concrete floors that were not originally designed of sufficient thickness and strength to avoid injury upon application of various live and dead loads, wear may be retarded and dusting avoided by the use of surface hardeners or sealers.

Hardeners for this job are of several types, all of which may be applied to a clean, dry concrete floor surface. Among the simplest and easiest to apply is a solution of sodium silicate which is particularly adaptable to floors that will not be washed or wet frequently. It provides an agglutinating compound in the pores and on the surface. Because the material is strongly alkaline it is not satisfactory as a base for other sealers or coatings. It is removable by repeated scrubbing with hot water.

Magnesium-Zinc Fluosilicate in solution is used by the government as a hardener, and may be had in many standard brands with or without admixtures. The solutions are simply flushed on the clean dry surfaces in various concentrations. They combine chemicals with the cement to produce a denser and harder surface, and are commonly called chemical hardeners. This type of hardener is used to stop dusting, and retard wear. While it neutralizes the alkalinity of the cement and may be used as a base for other sealers, it is not very effective on old floors.

Sealers of various kinds are commonly used on concrete floors. To be effective, these must be resistant against the alkali and moisture in the cement, must penetrate below the surface, and must dry very hard. They are based on synthetic resins and processed oils.

Surface coatings such as paint and lacquer have scant value on concrete floors subjected to heavy traffic.

A most important aspect of floor maintenance lies in the job of cleaning floors.

To a large extent because of the necessity of washing with hard water during the war, sometimes with sea water, manufacturers of soap and all types of cleaners will soon have improved products on the market. In choosing among these new products maintenance men should bear three technical factors in mind.

These three factors are: wetting power, emulsifying power and dispersing or suspending power.

Wetting power of a cleaner improves its effectiveness by changing the surface tension of the cleaning solution, thus freely wetting the surfaces and displacing the air in the interstices of the foreign matter and the surface to be cleaned. Such action permits foreign matter to be removed freely in the process of rinsing.

Emulsifying power enables the cleaner to remove oily and greasy matter from the surface causing its suspension in fine globules. Friction is usually required, and the emulsion must be rinsed before it dries lest a greasy film be redeposited. Use of common soap furnishes a simple example of this action.

Dispersing or suspending power reverses the natural tendency of many materials to stick together or coalesce when suspended in water. By this reversal fine particles of dirt are more easily removed in rinsing.

Concentrated Wear

When subjected to concentrated wear, concrete floors develop ruts and worn spots. Where these ruts or deep spots have become so bad as to interfere with the flow of plant traffic they can be roughened or re-topped with a special cement topping, or repaired by the use of special patching

MAINTENANCE is one of the most effective methods of insuring a profit. It is a balance wheel that keeps the plant operating smoothly, efficiently and economically, and saves the high cost of emergency repairs. The accompanying material is part of a series of editorial features dealing with maintenance in its varying forms and aspects.

compounds. The best known of these are based on asphalt emulsion used with suitable aggregates and sometimes Portland cement. Advantage of the emulsion compounds is that they may be worked to a "feather-edge."

Wood Floors

Wood floors can be resanded and re-finished. Linoleum and asphalt tile can be de-waxed and re-waxed, magnesite can be cleaned with tri-sodium phosphate; re-sealed tile can be mildly acid washed and re-sealed; marble can be poulticed and re-polished. In general those are the procedures to be used when floors have been neglected, but it is far easier to maintain floor surfaces in tip-top condition than to re-finish them.

• The iron heel of war at the Seattle Boeing plant 2 has made necessary extensive resurfacing projects throughout the shops as a means of stepping up work on several postwar contracts. Below, a "road gang" gives a transportation aisle a coat of black top.



WESTERNERS AT WORK...

Arizona

M. O. Best, Phoenix business and civic figure, elected chairman of board of recently reorganized and locally controlled Central Arizona Light and Power Company which serves Phoenix and Salt River valley. . . .

Glen Smoot elected pres. of Phoenix Engineers Club, succeeding James D. Apperson. Other officers named were Harry Wells, v.p.; Bob Baker, sec.-treas. . . .

Thomas H. O'Brien, v. p. of Inspiration Consolidated Copper Co., Inspiration, and gen. mgr. of operations since 1920, retired from exec. duties Jan. 1, but continues as v.p. in advisory capacity. P. D. I. Honeyman succeeds O'Brien, and is elevated from asst. gen. mgr. to position. H. Carroll Weed, as gen. supt. of Inspiration, will assist Honeyman.

C. R. Kuzzell, asst. gen. mgr. of Phelps Dodge Corp., Douglas, named pres. of Arizona section of American Institute of Mining Engineers.

California



W. H. Guild

C. E. Finney Jr.

W. H. Guild who headed Union Pacific's war-time transportation tasks for Southern California, and exec. asst. of the railroad, was elected v.p. by board of directors, taking over new post in Omaha Feb. 1. Guild has served Union Pacific for 40 years. . . . C. E. Finney, Jr., asst. v.p. for manufacturing, Standard Oil Company of California, upped to v.p. He will handle industrial relations in new position. Other Standard appointments are: G. H. Langsdorf, mgr. technical services, and O. N. Miller, asst. to G. A. Davidson, v.p. charge of manufacturing. Miller was formerly supt. of cracking division at El Segundo refinery. . . .

John A. Sowers, mgr. World Trade Department, Oakland Chamber of Commerce, resigned Feb. 1 to join Los Angeles Chamber as asst. mgr. of world trade department and will handle world trade committee program and activities for national foreign trade week. . . .

Additions to executive personnel of Ellinwood Industries, Los Angeles, include appointment of George Kis as electronics lab technician; M. C. Nelson, as supervisor of the Hydraulic Research lab-

oratory; and Edward M. Sumner, electronics laboratory research director.

Albert Cage, Riverside, v.p. and gen. mgr. of California Electric Power Co. moves up notch and succeeded A. B. West, retired, as pres. Mr. West remains as member of board of directors and executive committee. Also retiring is F. C. Dolson, senior v.p., who became associated with company in 1917. Carl C. Ernst, Riverside, steps into Cage's shoes as v.p. and gen. mgr. . . .

David E. Day, v.p. in charge of manufacturing, Richfield Oil Corp., named director of board of Co-ordinating Research Council, American Petroleum Institute, to represent Pacific Coast on Council, succeeding Ralph Hallorhan, pres. of California Research Corporation, resigned. . . . W. A. Patterson, pres. of United Air Lines, San Francisco, named member of air transport committee of International Chamber of Commerce. . . .

Frederick Vieweg succeeds F. Cecil Baker, retired, as pres. of American Potash & Chemical Corp., Los Angeles. Vieweg steps up from v.p. Peter Colefax, Trona, promoted to position of exec. v.p. of concern.

Harvey A. Craig apptd. Pacific Coast manager, Republic Steel Corp., Cleveland, and remains as manager of the company's Los Angeles office. . . . C. B. Callomon, formerly chief metallurgist at Western Gear Works, leaves to take over Metal Control Laboratories, Los Angeles, as gen. mgr. and chief metallurgist. . . . E. S. Waldbott, chief metallurgist at Douglas Aircraft's Long Beach plant promoted to



Robert E. Gross

Henry F. Grady

process engineer, retaining position as chief metallurgist. . . .

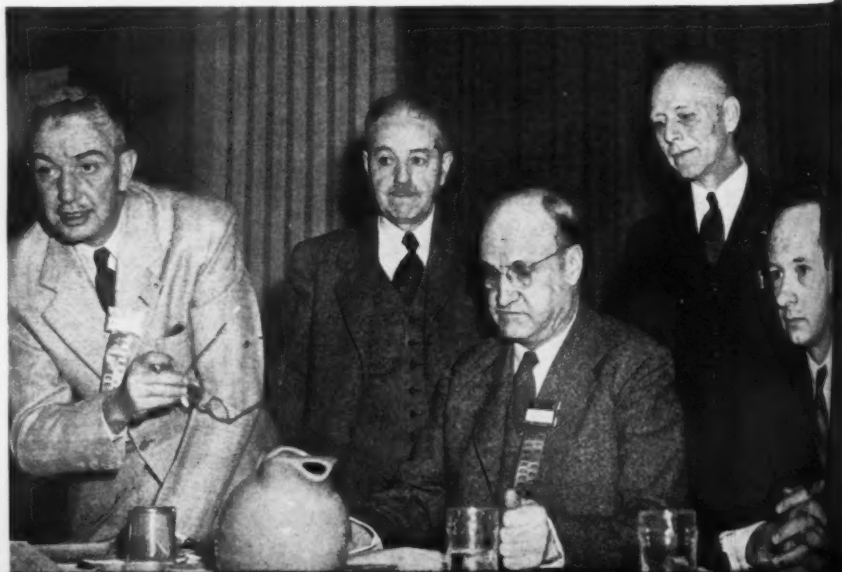
Henry F. Grady, pres., American President Lines, Ltd., and Robert E. Gross, pres., Lockheed Aircraft Corp., elected for 1946 as members of Business Advisory Council for Dept. of Commerce, Henry A. Wallace, Secretary of Commerce, announces. . . .

William J. Dunkerley, doffs uniform of Army Captain to resume duties with Los Angeles Chamber of Commerce where as staff member of World Trade Department he will specialize in promotion of trade with Europe.

Colorado

Harvey L. Tedrow, Cripple Creek, re-elected pres. of Colorado Mining Association; Other officers chosen are: B. T. Poxson, Denver, v.p.; C. J. Abrams, Climax, second v.p.; Merrill E. Shoup, Colorado Springs, third v.p.; John Hamm, Leadville, fourth v.p.; J. L. Robison, Grand Junction, fifth v.p.; C. O. Withrow, Denver, treas.; Robert S. Palmer, Denver, exec. sec. . . .

• When Elmer Pehrson of U.S. Bureau of Mines advocated importation of foreign metals at the forty-ninth annual mining meeting of the Colorado Mining Association, he touched off heated debate on the question of building up vital defense stockpiles out of domestically produced or imported strategic metals. Contending the mining industry should be encouraged to develop submarginal areas and uncover new deposits are Walter E. Scotty Jr., Central City, Colo., chairman of Colorado State Mineral Resources Board; Ray D. Nolan, representative from Montana; George M. Fowler, Joplin, Mo.; Sheldon L. Glover, representative from Washington state, and E. L. Clark, Missouri state geologist.



Floyd K. Reed, statistician for U.S. Bureau, Agricultural Economics, Denver, goes to Japan to direct work vital to future welfare of Japan and General MacArthur's occupation policy.

Lieut. Comdr. B. P. Montagriff, USN (Ret.) appointed head of industrial development division of Public Service Company of Colorado, at Denver in line with its three million dollar expansion, and will help in developing planning, data, counsel and advice for prospective new industries. . . .

George F. Schott, Denver, v.p. and director of Montezuma-Tam O'Shanter Mines, Inc., Columbia district, resigns to accept appt. with RFC as examiner of surplus property in Denver area. . . .



• William Jeffers, wartime rubber director, organizer of synthetic rubber program (retired UP pres.) is presented with first civilian size butyl tube by D. W. Walsh (left), U. S. Rubber's West Coast Tire Manager.

Ben. H. Ravenell appointed Rocky Mountain division engineer, and A. D. Otto, Rocky Mountain division office manager, of the Oil Well Supply Company, a subsidiary of U.S. Steel Corp., with headquarters in Denver. . . . Kirk V. Cammack, Denver, member of U.S. Geological Survey, War Resources Branch, has left for Japan to aid in preparation of report for American govt. on Japanese coal mining industry. . . .

Idaho

Donald A. Stewart has resigned as gen. mgr. of Sunset Minerals, Inc., operators of the Liberal King mine near Kellogg, to accept position with gold mining concern in Nome, Alaska. He is succeeded by J. C. Keiffer of Osburn, formerly gen. supt. of Deadwood Unit of Callahan Zinc-Lead Co., and more recently with Sink and Float Corp.

Montana

Percy H. Bliss appointed asst. regional construction engineer with branch of design and construction, Bureau of Re-

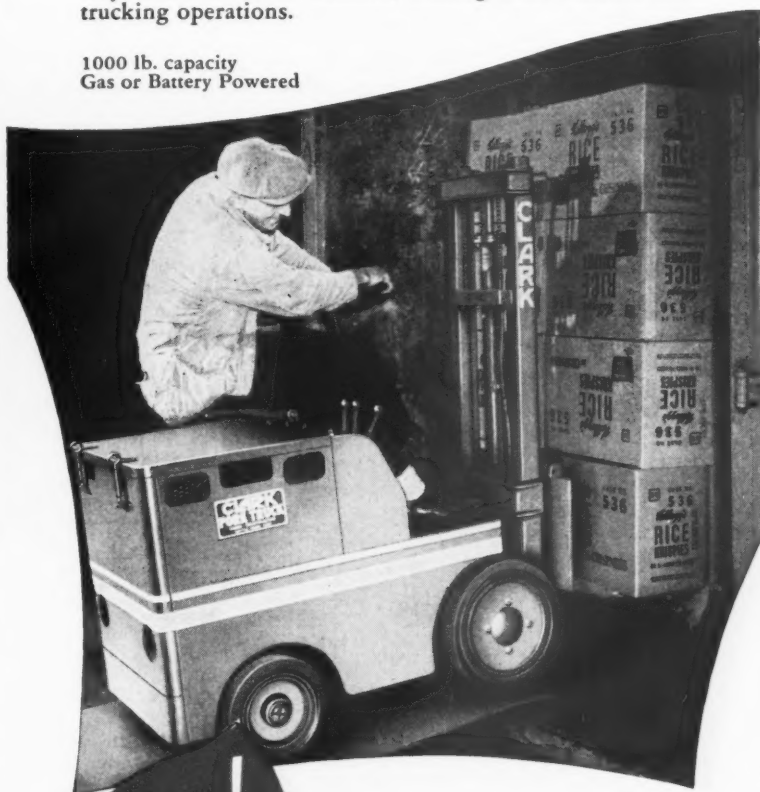
Here it is!

A NEW METHOD... A NEW VEHICLE

A unique fork truck to load and unload highway trucks in less time at lower cost.

Clark Tractor has from its birth in 1917 pioneered new methods of material handling. As its postwar product it introduces the Clark Trucloader, substituting for manual labor, a light compact fork truck to load and unload highway trucks in a few minutes, making more efficient all trucking operations.

1000 lb. capacity
Gas or Battery Powered



Now!

CLARK



TRUCLOADER

SEND FOR NEW BOOKLET ON CLARK TRUCLOADER METHOD

CLARK TRUCTRATOR DIVISION

1038 JAMES ST., BATTLE CREEK, MICHIGAN

Products of CLARK • TRANSMISSIONS • ELECTRIC STEEL CASTINGS
WHEELS FOR TRUCKS AND BUSES • AXLE HOUSINGS • BLIND RIVETS
INDUSTRIAL TRUCKS AND TRACTORS • HIGH-SPEED DRILLS AND REAMERS
METAL SPOKE WHEELS • GEARS AND FORGINGS • RAILWAY TRUCKS

WESTERNERS AT WORK...

clamation, Billings. Bliss was formerly lieut. cmdr. . . . **A. J. Hedensten**, Great Falls, elected pres. of Great Falls Shipping Association; **John B. Rodger**, v.p., **Aaron T. Johnson**, sec., and **L. E. Nichols**, re-elected treas.

Nevada

Robert E. Phelan, Nevada mining engineer, has opened a research laboratory at Carson City for general metallurgical research and examination. . . .

New officers of Reno Engineers' club are: **G. G. Hall**, asst. planning technician of regional planning commission, pres.; **Fred W. Clayton**, v.p.; **A. E. Holgate**, secretary; and **Charles L. Hill** and **Walter Herz**, directors. . . .

Orrin W. Davie, Reno, apptd. director of FHA in Nevada, succeeding **Harry S. Scheeline**, Reno, who returns to private business.

Dale C. Matthews, Pioche, upped from metallurgist, Ely Valley Mines Co., Pioche, to mill supt. . . . **Jack C. Kinnear**, v.p. charge of SW division of Kennecott Copper Corp., re-elected pres. of Nevada Mine Operators Assn.

New Mexico

Norman Shenk, pres. of Santa Fe Chamber of Commerce, elected chairman of New Mexico Council of Chambers of Commerce. **J. V. Lannigan**, Santa Fe, elected sec. of council. . . . **M. R. Prestidge**, operator of lumber mill at Alamogordo, elected chairman of Region 9, Western Pine Association; **G. R. McNary**, Flagstaff, Ariz., named secretary.

Walter C. Waidler apptd. mine supt. of Groundhog unit, American Smelting & Refining Co., Vanadium, New Mexico, succeeding **Fred V. Richard**. Waidler had been mine foreman.

Oregon

Hank Helber, tractor equipment assembly foreman, elected pres. of newly formed Greater Portland Management Club; other officers are: First v.p., **L. J. Kollatch**, Bingham Pump Co., repr. light industry; second v.p. **C. H. Lewis**, Standard Oil Co., representing petroleum industry; sec. **M. D. Duffy**, Northwestern Electric Co., representing Utilities; treas. **G. E. Bon Durant**, Foundation Worsted Mills, representing textile industry. . . .

Patrick T. McCarthy, Portland, who served three years overseas as a colonel in army engineers, appointed asst. superintendent of Union Pacific Railroad with headquarters at La Grande. He was supt. of Oregon division before going in service. . . . **Dr. S. W. Martin**, head of chemical section of Institute of Gas Technology, Chicago, since 1942, named asst. v.p. in charge of new by-product development for Portland Gas & Coke Co. . . .

John Y. Lansing, ex-Army Air Force captain, named as asst. to **Robert R. Mc-**

Kean, manager, Columbia Empire Industries, Inc. . . . Newly organized Pacific Lumber Re-manufacturer's Association, Portland, is headed by **Raymond Lewis**, Raymond, Wash., pres.; **John Harris**, Redding Forest Products, Redding, Calif., v.p.; **J. H. Jones**, Golden Gate Lumber Co., Eugene, sec.-treas.

H. J. Cox, Eugene, re-elected pres. of Forest Research Foundation, Portland; **Paul M. Dunn**, dean of the School of Forestry, Oregon State College, Corvallis, named sec.-treas. . . . **Melvin Gowing**, Portland, steps up to mgr. of new Correspondence Department of Jantzen Knitting Mills, from mgr. of adjustment department.



● Officers and Trustees of Northwest Scientific Assn. in attendance at annual meeting in Spokane are: (Seated) **J. W. Severy**, Missoula, Mont., retiring pres.; **Dr. E. E. Hubert**, Spokane, trustee; (standing) **Dr. R. F. E. Stier**, Spokane, chairman of board; **James G. McGovern**, Gonzaga Univ., Spokane, v.p.; **J. G. Macken**, Spokane, and **H. T. Gisborne**, forest service, Missoula, new president, of the N. W. Scientific Assn.

Utah

Advancements for officials of the Utah Copper Company include appointment of **Louis Buchman**, gen. supt. of mines, to post of gen. supt. of operations and **Roy Hatch**, supt. of the Arthur Mill, as director of labor relations; **C. C. Quigley** advanced from asst. supt. to supt. of the Arthur Mill; **John Allan**, formerly general mill foreman promoted to Quigley's former post as asst. supt. of the Arthur Mill; **Harvey L. Garrity** upped to supt. of mines; **L. F. Pett**, asst. mine supt.; **V. S. Barlow** succeeds Pett as general mine foreman; **J. C. Landenberger, Jr.** becomes general mill foreman, and **M. L. Ray** general track foreman.

At Combined Metals Reduction Company, **Max Kennard**, former plant engineer at Pioche, Nev., was upped to gen. supt. of Utah Mines and mechanical supt. of the Bauer Tooele. . . . **Sherman Johnson** moves from gen. supt. of Utah Mines, ore purchasing agent and asst. to gen. mgr. to take charge of metal sales; **R. J. Evans**, gen. flotation supt. will handle ore purchasing; **Lt. Richard Cowan**, Army dis-

chargee, will be asst. purchasing agent, under **E. G. Black**; **Reginald Lee** promoted to asst. gen. supt. of Utah Mines from engineering staff; **Owen Walker**, master mechanic at Pioche, upped to supt. of the Walker unit under **E. B. Young**, chief geologist; **Clem Walker** moves up to master mechanic post. New plant engineer at Pioche is former major, **Charles P. Ryan**, electrical engineer, who made electrical installations at Caselton Mill. **Harry Godbe** (ex-lieut. comdr.) will be asst. mining engineer at Pioche, and **Forrest L. Bradford** (former lieutenant) will be asst. engineer. **Maj. C. E. Bartlett**, former mill supt. at Mercur, will soon rejoin company's metallurgical staff, as will **Capt. Samuel E. Craig**, former supt. of Calumet and Honerine mines, who joins company's exploration department.

Jack H. Goasland, former asst. mgr. of Carver Sheet Metal Works, Salt Lake City, advanced to mgr.; **William A. Carver**, back from three years service in England, becomes asst. mgr. . . . **James J. Richardson** named asst. mgr. of Utah Metal Mine Operators Assn. . . .

Col. Ben H. Decker, veteran of four years duty with Military Railway Service, seeing action in European and African campaigns, returned to post as supt. of Salt Lake Division of Rio Grande Railroad, Feb. 1. Decker holds Legion of Merit and Croix de Guerre for outstanding service in keeping supplies moving to front after Normandy invasion and for work in restoring shattered railroads of Europe. . . . **K. L. Moriarty** who acted as supt. of Salt Lake Division in his absence returns to Denver as asst. chief engineer of the system. . . .

Samuel I. Bowditch apptd. mining geologist for American Smelting & Refining Co., Salt Lake City, when returned from position as mineral specialist in charge of lead with Foreign Economic Administration, Washington, D. C. . . . **W. C. Wimer** transfers from field geologist for International Smelting & Refining Co., Salt Lake City, to take position as chief engineer and geologist for Darwin mines, Darwin, Calif., which are operated by Anaconda Copper Mining Co.

Washington

Col. Frederick J. Clarke, a 30-year-old engineer West Pointer, has taken charge of the Hanford atomic bomb materials plant succeeding **Col. Franklin T. Matthias** who has left the army to take a position as manager of a hydroelectric project of the Sao Paulo Tramway, Light & Power Company, Ltd., in Brazil.

D. A. Miller succeeds **Dr. B. H. Mackey** as plant manager of the Hanford Engineering Works, and **T. M. Stepleton** becomes asst. gen. supt. Mackey was transferred to Wilmington plant of Dupont Co.

Rupert Garrison, 3326 Forty-third Avenue NE, Seattle, is one of the incorporators and officials of Garrison Mining Company, newly organized concern.

Ferris C. Booth, Chicago, comes to Spokane to manage the Swift & Co. packing plant which the John Lewis Packing Co. recently acquired. . . . Carl Dunning named mgr. of Washington Packers', Inc., new plant at Centralia. . . .

Capt. Robert C. Hayes has returned to Seattle and staff of Association of Washington Industries. He was former manager of the Manufacturers' Association of Washington. . . . Edwin M. Stevenson named to post of foreign freight agent for Northern Pacific Railroad, at Seattle. . . . Willis Camp named asst. to pres. of Electrical Products Consolidated, Seattle, had been acting district mgr. for United Air Lines. . . .

Pres. Wilson Compton, Washington State College, Pullman, elected an honorary v.p. of American Forestry Assn. for constructive interest in conservation of nation's forest resources. . . . A. Elliott Merrill and Robert T. Lamson, both of Seattle, test pilots in engineering dept. of Boeing Aircraft Co. co-recipients of Octave Chanute Award for 1945 for obtaining data aiding in design of high-altitude military aircraft; award given annually by Institute of Aeronautical Sciences. . . .

Kenneth T. Duryee has returned to former position with Graystone Concrete Products Co. as office mgr. Duryee served with Coast Guard during war. . . . Ken Brown, personnel director at Lake Washington Shipyards, changes to v.p. in charge of operations of Seattle Chamber of Commerce, succeeding Chris Gilson. . . . Chamber also has added Jack Geoffroy, formerly research director for Seattle Municipal League, as administrative asst., replacing Graham Steel; Earl S. Bigley, aviation dept. manager, and Hugh A. Scott, in public relations.

A. R. Lintner elected pres. and gen. mgr. of American Mail Line by board of directors, succeeding Lawrence C. Calvert, who resigned. He has served as v.p. and gen. mgr. . . . C. S. Hoffman named to post of acting manager of Timber Products Manufacturers Assn., Spokane, succeeding H. D. Weaver, who accepted position of sec-mgr. of Lumbermen's Industrial Relations Committee, Inc., Portland.

Wyoming

Union Pacific administrative offices will see many new faces. A. E. Stoddard, former supt. of Wyoming division, who served in army as colonel, becomes supt. of Kansas division with headquarters at Kansas City . . . E. H. Bailey becomes supt. of Wyoming division at Cheyenne, replacing J. E. Mulick who has been named asst. supt. of first and second subdivisions with headquarters at Omaha. Elgin Hicks, former asst. supt. of Nebraska division, becomes supt. of that division with headquarters at Omaha, succeeding Bailey.



FINISHING Landing Gear Piston Rods

Note the mirror-like finish on the rod in the upper picture . . . it's a beautiful job, one of which the buffers at Aireon Mfg. Co., Burbank, California can well be proud. We, too, can take pride in this fine piece of work because the method was suggested by one of our Finishing Specialists and Lea Compound is the finishing composition.

If any of your production steps involve burring, polishing or buffing . . . and if you're not entirely satisfied with the results you are getting, why not get in touch with us? We'll be glad to help you as we have helped countless others both in the decorative and war-contract fields.



THE **LEA** MANUFACTURING COMPANY

WATERBURY 24, CONNECTICUT

Burring, Buffing and Polishing . . . Manufacturers and Specialists in the Development of Production Methods and Compositions.

REGIONAL REVIEWS

SIERRAS TO THE SEA

SAN FRANCISCO—Year-end reports for 1945 on major activities in the San Francisco Bay area reveal new highs in population, wholesale and retail sales and financial transactions, but a sharp decline in manufacturing payrolls and a smaller one in freight car movements.

Population on January 1, 1946 is estimated at 2,543,000, or 157,000 above a year ago and 808,692 or 46.6 per cent above the 1940 census for the 9-county area.

Retail sales estimate for 1945 of \$1,937,024,000 is \$176,000,000 above 1944 and \$1,060,628,000 or 121 per cent above the total reported by the census for 1939. Wholesale sales estimate of \$3,478,000,000 for 1945 exceeds the 1944 estimate by \$64,277,000 and the 1939 sales by \$1,842,018,000 or 112 per cent.

Financial transactions measured by bank debits in the Bay Area soared to \$27,393,883,000 or \$1,750,182,000 above 1944 and \$14,320,142,000 above the 1940 level representing an increase of 127 per cent.

On the Down Side

Freight car movements in the San Francisco-Oakland switching limits totaling

784,567 were 40,925 under the 1944 level but 370,106 above the 1940 level. 1945 payrolls in the manufacturing industries in the San Francisco Industrial Area (five counties) estimated at \$473,000,000 dropped off about 34 per cent from the 1944 level but were nearly four times the total reported by the 1939 census which amounted to \$110,964,000.

Non-manufacturing industries reported payroll increases during 1945 over 1944 of 5 per cent in the retail, wholesale, and laundry groups, and 10 per cent in the hotel group.

Chemical Center

Objections now coming to light against some of the features of the Reber plan for making much of San Francisco Bay a fresh-water lake, reveal the fact that the bay area is becoming an increasingly important center for chemical manufacturing operations. The Reber plan is in the dream stage, of course, but it serves to indicate some of the developments that may be expected in the future to provide a new crossing of the bay from east to west and to provide new docking facilities.

To make a solid fill from San Francisco

to the east side of the bay, would mean total destruction of all the salt manufacturing that now goes on in the southern portion of the bay, it is pointed out by Fred B. Bain, chairman of Leslie Salt Co. Leslie's operations are the largest, but Morton Salt Co. also carry on refining at Newark, and in addition there are other smaller companies.

Westvaco Chlorine Products Corp. put in a \$3,000,000 plant at Newark to make use of a by-product from Leslie, and Dow Chemical Company get crude salt for their plant at Richmond from the Leslie establishment. Both of these would cease if the southern part of the bay were made a fresh-water lake.

On the San Mateo side of the bay the Leslie company are expecting that other chemical manufacturers will locate in due course of time, and their salt operations in that area are being expanded accordingly.

The land on both sides of the bay in the southern bay section is only suitable for industrial use, as it is mostly tidal flats too much impregnated with salt to be suitable for agricultural purposes.

Truck Manufacturing

International Harvester Company has taken a 10-year lease on a manufacturing plant in Emeryville owned by the Tide Water Associated Oil Company, where heavy-duty trucks will be produced, both gasoline and diesel. By next summer In-

PIONEER RUBBER MILLS INITIAL CARE

means better Fire Hose



Dependability—built into Pioneer Rubber Products guarantees top performance

PIONEER

Job Tailored BELTING · HOSE · PACKING

PIONEER RUBBER MILLS
353 SACRAMENTO ST., SAN FRANCISCO, 11

Branches in: LOS ANGELES · PORTLAND · TACOMA · SEATTLE
SALT LAKE CITY · DENVER · CHICAGO · ST. LOUIS

ternational hopes to be in full production, and the company announces that exhaustive studies of Pacific Coast and Rocky Mountain needs were made and that the trucks will meet the particular requirements of the area. Adolph W. Engstrom will be works manager and Robert Ulrich chief engineer.

The above is International's announcement, which means that the company has decided to invade the heavy-duty truck market in the West that has been dominated for years by Kenworth Truck Co. of Seattle and its more recent competitor, Peterbilt Motor Co. of Oakland. Mr. Engstrom managed the Kenworth company in the days when it was a Boeing subsidiary, but his name did not appear on the list of officers when the Piggot brothers of Pacific Car & Foundry of Seattle made a deal for Kenworth with Boeing.

Mr. Ulrich was in charge of special equipment engineering for International, and brought out with him several others from the east, who will occupy the following positions at Emeryville: F. C. Miller, auditor; E. H. Bickell, material controller; E. C. Becker, buyer; H. E. Straub, general foreman.

Big Market For Diesels

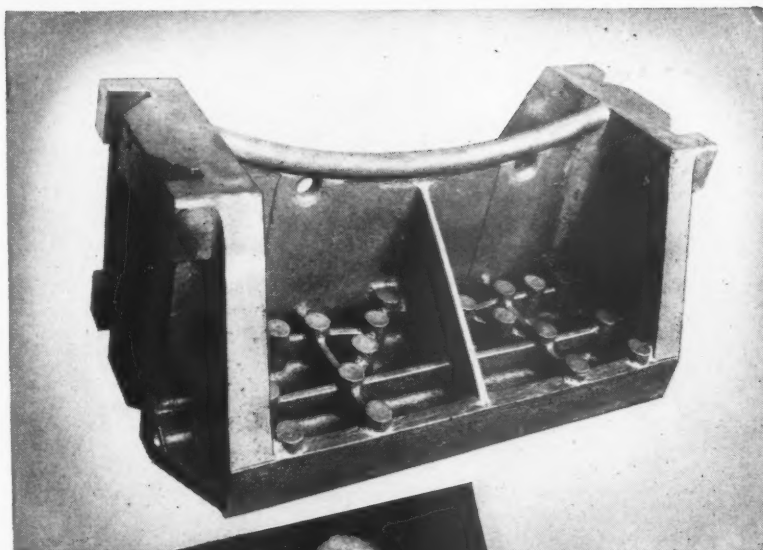
If it is true that the appearance of more competition increases business for all, then a lot more diesel trucks will be sold in the West than ever before, because more than 90 per cent of all the automotive diesels in the country are used in this area. Heavy hauling jobs on the highway, in the logging country and on construction jobs have multiplied diesel sales at a tremendous rate in the last 15 years. It is an interesting fact that the dominating make of automotive diesel engine, the Cummins, was developed in California and the company is still owned by California interests, although the factory is in Indiana.

Whether Autocar and Sterling, the other two principal factors in the heavy-duty field, will eventually decide to manufacture in the West, remains to be seen.

Airmail Soars

Annual poundage of air mail from the Oakland post office passed the million mark in 1945, 74,691 pounds more than in 1944. Ten years ago only 124,031 pounds of airmail were dispatched. No weight record is kept of incoming airmail, but it generally runs about the same as outgoing.

The San Francisco postoffice also touched new highs in 1945. Because of the enormous amount of mail flowing out and in from the war areas in the Pacific its facilities have been taxed to the utmost, despite the fact that both Army and Navy did the actual classification of mail in post-offices of their own. Civilian mail service had to suffer at times, but the load is now easing up.



↑ DROP HAMMER
5000 LBS.



← 11-13 CHROME
STAINLESS STEEL
PUMP CASE

SIZE IS NO OBJECTION ... AT WARMAN

Production at WARMAN ranges from castings weighing a pound apiece to those which tip the scales at 10,000 pounds each ... or more, if need be. Whether small pieces ... or large, heavy castings ... the Warman plant is arranged for efficient production in any quantity. As the largest producer of steel castings in the Southwest, Warman has the facilities plus the experience to produce every type of castable steel ... in any size and quantity required.

Warman produces stainless and heat resistant steels, Navy and A. B. S. and various A. S. T. M. specifications, S. A. E. and special purpose steels.

WARMAN

STEEL CASTING COMPANY

6100 South Boyle Avenue • Los Angeles 11, California

SPECIALISTS ON STEEL CASTINGS FOR OVER 33 YEARS

REGIONAL REVIEWS

THE COLUMBIA EMPIRE

PORTLAND—Low-cost power, long a byword in the Columbia Empire and one of the strong levers in efforts to attract postwar industry from the East, is destined to play an important role in coming events.

Since power is so important to new industry, the Columbia Empire is telling the details to Eastern prospects with increasing vigor, along with details of Western and Oriental markets, raw materials and other advantages the West Coast has.

Bonneville and Grand Coulee, of course, are the large blocks of power, but in Oregon private utility companies have announced new expansion of manufacturing and distribution facilities to cost \$51½ million dollars.

Bonneville Rate Reports

But there is a fly in the ointment. The \$17.50 rate for Bonneville power, which flows over private as well as public lines, is being attacked as too low to amortize cost of the big public projects.

Since some factions would like to see that rate doubled, remembering that many other public projects sell in the \$30 bracket, there is high interest among Columbia Empire "new industry" advocates in two reports just issued from Washington, D.C.

They are the Dept. of Interior financial report on Columbia river power showing surpluses accrued at the \$17.50 rate, and a private public accounting firm's study of the Bonneville financial structure. The latter was made by Arthur Anderson & Co. at the suggestion of Bonneville which wants to maintain its low rate as an industrial inducement.

Industrial Developments

Despite all the ballyhoo and chamber of commerce work, Oregon's payroll has dropped by 100,000 persons since the 1943-44 peak. The USES estimates 58,000 of that number now are unemployed in Oregon. It's a dark picture as painted, but, strangely, many Oregonians seem to think that the gloomy paint is wearing thin.

There are 1,000 more businesses in the state than ever before, not counting those employing less than four persons. The Portland and Willamette valley areas are busy showing sites to prospective new industries. Many of the unemployed are students now back in high school and college and thousands are women back in their homes.

A Minnesota firm is investing \$250,000 in a battery separator plant. The American Can company is to build on 28 acres it has purchased in Salem. Smaller firms have purchased 18 acres for industrial sites in one tract at Albany. Standard Oil is spending \$1,000,000, Beall Pipe & Tank \$500,000 and Pacific Chain \$250,000 at Portland for new plants.

The previously-announced \$15,000,000 Crown Zellerbach paper and pulp expansion, most of which will be at West Linn, tops the list.

These are only scattered examples of a trend now being underlined with hard cash and destined to take up much of the unemployment slack.

Lumber Remanufacturing

With shipbuilding, No. 1 industry in war, fading rapidly from the picture and highlighted recently by the decision of Willamette Iron & Steel Corporation to sell its entire plant, the lumber industry, No. 1 in peacetime, is coming even more to the fore.

A new group in that industry, the remanufacturing plants that boomed to large proportions during the war, is organizing to consolidate its gains.

With the big, established mills handicapped during the war and since by price penalties on drying and finishing lumber, the remanufacturers have done a land-office business. The many small, new mills set up in Oregon timber during the war boom in lumber also helped create a de-

★ BUILT TO OUTLAST THE CENTURY



JOHNS-MANVILLE
CORRUGATED AND FLAT
TRANSITE

Johns-Manville Corrugated and Flat Transite provides many advantages in design and construction for modern industrial buildings. Its resistance to fire, rust, deterioration and rot is matched only by its ease of application and the fact that once installed it requires no maintenance. Marine Engineering & Supply Company engineers are prepared to help you solve your building material supply problems with speed and efficiency. Write for the 80-page illustrated Bulletin showing the application of Corrugated and Flat Transite. No obligation.

Marine
ENGINEERING & SUPPLY CO.
941 East Second St. • Los Angeles • Michigan 8071

EVERYTHING
IN
INSULATION

mand for remanufacturers because they had no facilities for planning and other finishing.

Industry Organizes

A group of West Coast men, largely from Oregon but extending into several states, will be busy during the next few months organizing the milling-in-transit, resawing, finishing and similar plants of the Pacific Coast into the Pacific Lumber Remanufacturers Association. Raymond Lewis of Raymond, Wash., president of the Raymond Hardwood Company, is president and has hopes for extending the organization on a national scale. John Harris of Redding, Cal., Redding Forest Products, is vice president. Other officers are all from Oregon.

Their hopes are on the fact that many new sawmill operations are and will be of the portable type, set up in the woods and without the capacity for making a finished product. The shortage of finished lumber for homebuilding now is helping the remanufacturers to consolidate their gains for the time when lumber will not be in such high demand and the big mills will be expanding more effort on the finished product.

Soon to be in a position to challenge lumber for postwar industrial expansion honors is the food processing industry which already is moving forward on a \$2,500,000 initial expansion.

The Eastern Oregon Food Co-op of Weston will spend \$1,000,000 on a food processing plant. The Bridgeford Company, a subsidiary of Frozen Foods of Los Angeles, has opened bids for a \$1 million plant at Ontario. The \$350,000 sea food plant of Commando Packing at North Bend is to be in operation this summer.

Kaiser Flying Office

To expedite engineering and construction work of the far flung Kaiser industrial empire, a \$100,000 "flying office" has been developed for executives of Kaiser's Oregon Shipbuilding Corp. and Consolidated builders, Portland.

An air-age dream for the busy executive, the plane, based at the Portland airport, is reported the first civilian plane to use an experimental radar "obstruction indicator" for flying safety. The unit spots mountains, trees or airplanes forward of the airplane.

Designed by Capt. Ralph Adams, Kaiser's chief pilot, it is a twin engine converted Lockheed-Hudson bomber. The main cabin has seats for six and a couch accommodating one sleeper or three more seated passengers. Work tables, radio and jugs for hot lunch and coffee en route are handy. Altimeter, clock, compass and airspeed dial in the cabin keeps executives posted. The plane has a 1200-mile cruising range.

A similar type craft made the Portland-Washington, D.C. trip in 11 hours.

Always in Motion READY for ACTION



A simple automatic circulating system keeps an inner top hopper constantly full ready for action.



Cement intake at bottom of silo is a 12" screw conveyor designed for rapid unloading of trucks and rail cars.



Portable CONVEYCO CEMENT SILO

ERECTED and "ready for action" in a matter of minutes with a single lift of a crane. The Conveyco Cement Silo is equipped with a simple circulating system having integral machinery and switch board. Just connect with power lines and the silo is ready to operate.

Conveyco cement silos can make money and save money on your next job. They are designed in one piece for easy transporting by truck or rail, Conveyco Silos are sturdily constructed for years of service. Can be designed to fit any special conditions. Write for information today.

THE CONVEYOR CO.

ENGINEERS • MANUFACTURERS

3260 E. SLAUSON AVENUE
LOS ANGELES 11, CALIFORNIA

CONVEYCO
EQUIPMENT FOR:
• VEGETABLE PACKING
• CONSTRUCTION
• CONVEYING
• OIL FIELDS



REGIONAL REVIEWS

CONTINENTAL DIVIDE

DENVER — Far-reaching changes may result up and down the Continental Divide because of the trans-fusion given the *Denver Post*. The new blood comes from Palmer Hoyt of the Portland *Oregonian*, who has replaced the veteran *Post* publisher, W. C. Shepherd.

Retirement of Shepherd ends the Bonfils-Tammen era, for the few remaining staff members who were schooled under Bonfils and Tammen now are nearing retirement age and exercise little influence in the Champa Street editorial rooms of the *Denver Post*.

Amazed Denverites, noting that the *Oregonian* has a good reputation and that the new *Post* publisher spent a couple of years with a government agency as domestic director of the OWI, are wondering if the reactionary policies of the *Post* are soon to undergo a change.

In recent years the once-forceful and progressive *Post* has spent relatively little time promoting the development of the mountain and plains area of which it once was the outspoken champion; all it has done the past few years, in the judgment of many businessmen, is to crab and

bewail whatever is happening without proposing anything like a constructive program. New blood seemed to be just what the *Post* needed, and the businessmen of the Rocky Mountain region will watch with interest to see what happens when Palmer Hoyt really takes hold of the "Big Brother" on Champa Street.

Matches from Aspen

Colorado aspen, usually regarded as something that dresses up the autumn landscape but with no commercial value, has proved to be just right for match sticks. The Berst-Forster-Dixfield Company of Cloquet, Minn., has contracted with the U.S. Forest Service to take out five million board feet of the wood from the Montezuma National Forest with headquarters at Cortez, Colo.

The firm is said to be the only American manufacturer of Swedish-type safety matches. Exhaustive tests were made before Colorado aspen was found to be the best wood to use for match splints, now that the supply of white pine and aspen in the Great Lakes area is dwindling. Only trees above ten inches in diameter at breast height will be cut.

Success Story

During the depression one of the oil field workers in the old Florence, Colorado field, was a man named Earl Hollandsworth. He went to Texas and made a great fortune in the East Texas oil field. The other day he came back to Colorado and bought the whole Florence oil field, consisting of some 30 pumping wells, from the Continental Oil Company. The Continental company will buy his oil and retains rights to any oil that may be found in deeper horizons not yet tapped at the Florence pool.

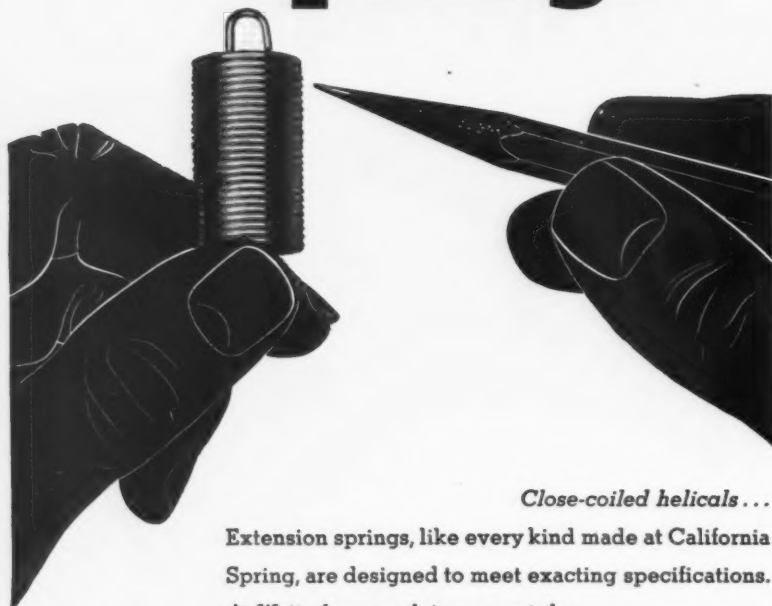
Hand-Made Jewelry Factories

One sure-fire line of goods that seems to have a market in good times or bad is Indian jewelry and other articles that look as if they might have been made by an Indian somewhere in the Southwest. Much of the would-be Indian stuff used to be manufactured in Rhode Island and New York.

The H. H. Tammen Company in Denver, a little closer to the Indians, built up one of the nicest manufacturing businesses in the west—largely on items that might seem Indian-made if the buyer wasn't too particular. Gradually the taste of the buying public has improved, so that the sort of Indian goods now in demand has to be as good as the Indians themselves make, or better. Neckties, belts, blankets and silver jewelry with true fidelity to Indian symbols and designs now constitute important items in the West's economy.

Post-war developments in this business are following the usual pattern of expansion. In Albuquerque, New Mexico, a million-dollar plant is being developed by

Springs



Close-coiled helicals...

Extension springs, like every kind made at California Spring, are designed to meet exacting specifications.

★ Write for complete new catalog



California Spring

COMPANY • INCORPORATED

Spring Headquarters of the West since 1923

1746 South Los Angeles Street

Los Angeles 15, California

Flat Steel



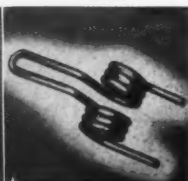
Compression



Spring Clip



Torsion



Jack Michelson and Louis McRae to manufacture Indian-type jewelry and neckties, with some real Indians around to lend a note of authenticity—and to teach the Indians something about mass production of "Indian" goods.

Isolation Ended

Machinery manufacturers and equipment firms have often cursed the luck for putting booming oil fields and mining camps in such out-of-the-way spots. One of the most isolated spots in the West has been the great new oil discovery, Rangely Field, in north-western Colorado near the Utah state line. No railroad comes within less than 125 miles of the field, and travel by truck or automobile from the nearest railroad is a slow and expensive—in time—proposition.

Now, at least, Rangely Field has twice-a-day passenger and freight service by airplane from Grand Junction, Colo., which is on the main east-west line of the Rio Grande railroad and within a few weeks will have scheduled stops on Western Air Lines new cutoff route between Los Angeles and Denver.

Mountain Skylines is the name of the new airline and L. B. Connor is its operations superintendent. He and the pilots have just emerged from overseas flying service in the war. So far the freight carried has included oysters and fresh fish, laundry, oil well tools and electrical supplies. "Anything that can be put, packed or driven into an airplane," qualifies as freight on the Rangely run.

Yule Marble Again

That beautiful white marble in the Tomb of the Unknown Soldier at Arlington is just one example of the memorials in which Colorado Yule marble was selected for a supreme tribute. For many years the Western product had no rival so far as quality was concerned, but it was relatively expensive to quarry and ship it and the business long ago fell into the hands of its great rival, the Vermont Marble Company, which puts out some mighty fine stone of its own from the world-famous quarries in Vermont.

Eventually, the Colorado quarries were dismantled and supposedly put out of commission for all time. The narrow-gauge railroad that served the out-of-the-way quarries at Marble, Colorado, was removed until nothing remained but the marble-strewn right-of-way. It looked as if one of the West's finest raw materials had been knocked in the head until it was dead, dead, dead.

But the Vermont people have decided to take another whirl at it, and now are busily engaged in trying to repair the damage that was done so thoroughly when the word went out to put Yule marble out of the picture for keeps. Some new memorials are likely to be built, and as before, the best of them probably will be built

(Continued on Page 56)



Reconversion at Commercial Iron Works means *This to You!*

WHEN you take your reconversion problem to Commercial Iron Works—whether it is repairing a merchant ship, or installing a diesel driven pump—the collective "know-how" of the men who have been engineers, founders, and machinists for thirty years will be focused on your job.

The skill that went into installing radar on "men of war" can now do the same kind of a peacetime job. The experience and precision which executed fabricating jobs for the Navy during the dark days after Pearl Harbor are again ready to do the same thing for America's peacetime factories.

No engineer, machinist, or worker at Commercial Iron Works can ever be called a "Johnnie-come-lately!" These men have a huge reservoir of experience on which they can draw. This reservoir includes two wars, and two decades of peace.

The "know-how" which comes from years of actually *doing* jobs is the thing that counts. Developing better methods, designing and engineering everything from heavy road paving machinery to building aircraft carriers, has given these men the skill, and developed the ingenuity which is now ready to further the industrial might of the Pacific Northwest.



COMMERCIAL IRON WORKS
PORTLAND, OREGON
Contractors, Fabricators, Engineers, Machinists, Founders, Shipbuilding, Marine Repairs, Drydocking

CONTINENTAL (Cont'd from Pg. 55)

of Colorado Yule marble from the headwaters of the Crystal river up under the Continental Divide.

Alberta Shows the Way

The Western Canada provinces of Alberta and British Columbia are swinging into highway development programs that make some of the other states up and down the Rocky Mountains look like pikers. Alberta's \$120,000,000 five-year plan is a bold bid for tourist traffic of the sort that will build up the whole area as the investment pays off in new businesses,

new homes, new towns and new residents by the thousands.

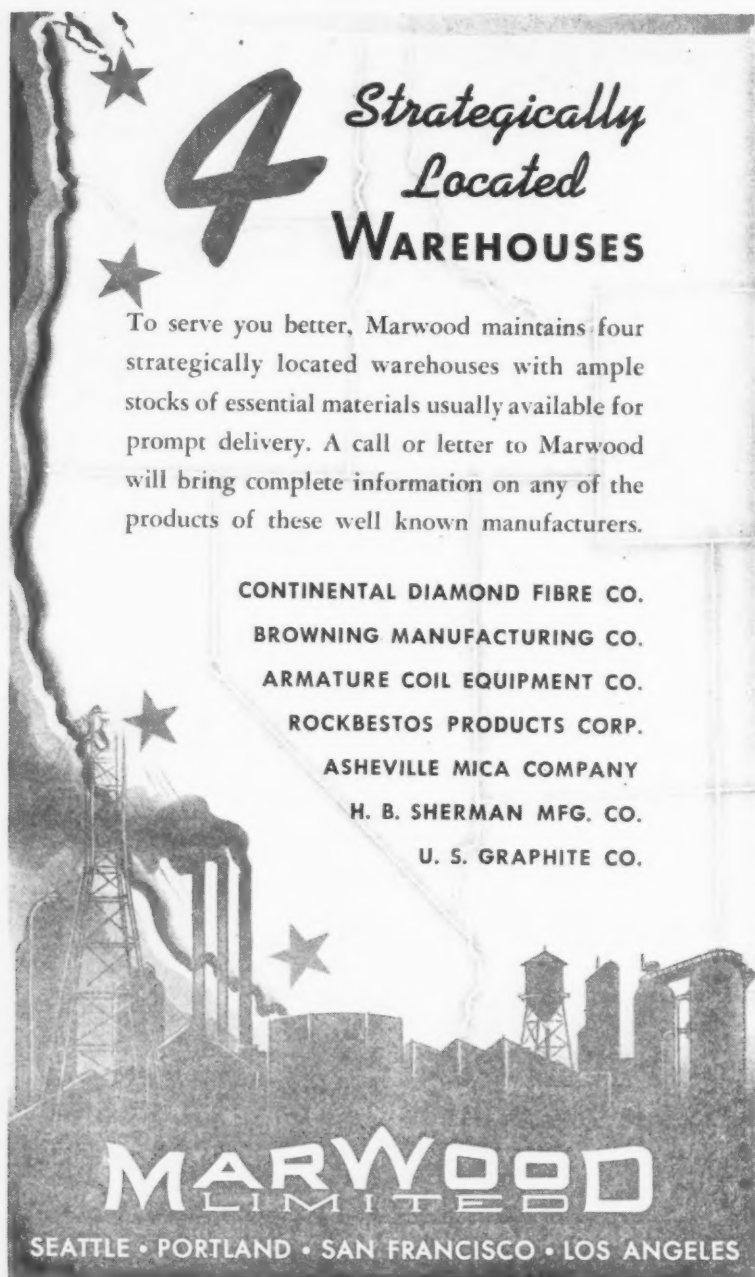
"Standing Room Only" is the admission of the Denver Chamber of Commerce, which has called a halt to its long-range program of attracting additional industries to "the Queen City of the Plains" while awaiting new floor space and housing.

Almost weeping at the irony of it, employees of the Chamber suddenly find themselves hopelessly swamped with offers from firms that want to move to Denver if reasonable accommodations can be promised them. There are no accommodations, reasonable or otherwise. Here is the Chamber's latest report:

"A manufacturer of automobile connecting rods wants 7,500 square feet; a manufacturer of orange juices, 75,000 to 100,000 square feet; a manufacturer of telephone equipment, 60,000 to 75,000 square feet; a leather manufacturer, 100,000 square feet; a publisher of professional reference books, 30,000 to 60,000 square feet. . . more than a million square feet in all, for office and factory space. And we must wait until the few cities having excess space have it filled. Then Denver will be on a par with other cities seeking new industries."

Note that "we must wait" business. That is characteristic of "organized business" in Denver. Despite the fact that the Chamber of Commerce has a competent staff that sincerely tries to keep Denver moving ahead, it is a heart-breaking assignment because everybody knows that most of the important industrialists and businessmen in Denver don't want the city to get much larger.

The "we must wait" attitude is evident in the lack of any program to solve the critical housing shortage, and the same approach is being followed with regard to the needs of new and expanding business and industry. "Top management" likes the status quo.



4 Strategically Located WAREHOUSES

To serve you better, Marwood maintains four strategically located warehouses with ample stocks of essential materials usually available for prompt delivery. A call or letter to Marwood will bring complete information on any of the products of these well known manufacturers.

CONTINENTAL DIAMOND FIBRE CO.
BROWNING MANUFACTURING CO.
ARMATURE COIL EQUIPMENT CO.
ROCKBESTOS PRODUCTS CORP.
ASHEVILLE MICA COMPANY
H. B. SHERMAN MFG. CO.
U. S. GRAPHITE CO.

MARWOOD LIMITED
SEATTLE • PORTLAND • SAN FRANCISCO • LOS ANGELES

Consolidated Buys ACF-Brill Motors

Rumors a few months back that integration of airframe plants and aircraft engine manufacturers would begin with a consolidation of Lockheed and Curtiss-Wright have failed to materialize, but Consolidated Vultee Aircraft Corporation has now stepped into the engine business by purchasing a controlling interest in ACF-Brill Motors Company and its wholly-owned subsidiary, Hall-Scott Motor Car Company of Berkeley, California.

The purchase marks the first entrance by a major aircraft producer into the field of automotive surface transportation, and is a postwar diversification move. Whether it will mean utilization of the San Diego plant for manufacturing buses and trolley coaches, already carried on by Brill, is not known. Consolidated has been utilizing surplus plant capacity by making kitchen ranges at Nashville, Tenn., but so far has confined its San Diego operations to aircraft.

Hall-Scott manufactures bus, marine and industrial engines. During the war they produced specialized engines for high-speed patrol boats, tank retrievers and other motorized equipment.

Irving B. Babcock, board chairman of Consolidated Vultee, has been engaged in motor truck and bus production for more than 25 years. Until January, 1945, he was president of Yellow Truck and Coach Manufacturing Company, world's largest manufacturers of buses and trucks, and a vice-president of General Motors Corporation.

NOW AVAILABLE!

GOVERNMENT SURPLUS

METALS

FOR IMMEDIATE DELIVERY

THE Western Regional offices of the War Assets Corporation have joined together in a cooperative sales offering of ferrous and non-ferrous metals. If items you seek are not listed, you may be able to obtain them through the nearest War Assets Corporation office.

COPPER TUBING

Hard or soft drawn seamless, in coils or various straight lengths (crated). Various diameters and thicknesses.

ALUMINUM

Sheets and tubing in various sizes, thicknesses and specifications (San Francisco). Bars, rods, tubing and extrusions, (Los Angeles).

BRASS

Brass pipe, Grade A seamless in 12 to 16 foot random lengths 1/2" to 5" diameters.

PIPE

Small inventories of: cast iron and steel pipe in various sizes; fittings including reduction couplings, tees and elbows; well casing; lap-weld and galvanized pipe; and steel tubing.

VALVES

A broad range of valves in various sizes and materials including wedge gate, swing, check, float, globe and plug, with wheel, wrench or hydraulic control.

CABLE - WIRE ROPE

Choice selection of cable in various sizes (with hemp or fibre core) including guy-wire type galvanized or tinned. Also heavier cables with serration, suitable for bonding, guying, guard rails, etc.

LEAD BASE ALLOYS

Limited inventories of babbitt and solder. Determine availability through nearest W.A.C. office.

STEEL

PLATES

Sheared or milled plates in wide range of sizes carried in most W.A.C. western inventories.

SHEETS

Limited supply in scattered locations (broken lines). Hot rolled alloy sheets (SAE 9130) from 7 to 14 ga. varied widths from 29" to 70" and lengths from 86" to 168", available from San Francisco inventory.

BAR

Good supply carbon square, and octagon in varying lengths and diameters.

Production bars, round mild steel in 20 foot lengths, available at Spokane or apply to nearest agency.

STRIP

Varying thicknesses and widths (in rolls and flat).

STRUCTURALS

Broad inventory in various dimensions and specifications.

MILL STOCK

Various sizes and analyses, available at Salt Lake City.

WAR ASSETS CORPORATION

A subsidiary of Reconstruction Finance Corporation

*Items offered subject to prior sale or withdrawal.
Buying preference to Veterans of World War II.*

WESTERN OFFICES: Boston Building, DENVER, Alpine 0415 • Power Block, HELENA, Phone 481 • 215 West 5th St., LOS ANGELES, Michigan 6321 • Pittock Block, PORTLAND, ATwater 6401 • Dooly Bldg., SALT LAKE CITY, 5-7503 • Dexter Horton Bldg., SEATTLE, Main 1080 • Columbia Bldg., SPOKANE, Main 5111

REGIONAL REVIEWS

TEHACHEPI TO TIJUANA

LOS ANGELES—Dubious ones who have shaken their heads gloomily, wondering how on earth the enormous productive potential of this area's war swollen industry could be absorbed, are getting a practical demonstration of the truth of the old maxim, "Don't sell America short."

Merely stocking the shelves of the new retail businesses that are springing up nowadays will be a production job of no mean proportions—to say nothing of filling the

gaps in the showcases of established stores. The same Los Angeles women who recently lined up five deep in a line two blocks long, awaiting opening of a sale of some 200 pairs of nylon stockings, had their handbags bulging with greenbacks that simply itched to be spent for household items which might as well be of Western manufacture.

Southern California's industrial machine, which was enlarged nearly a billion dollars' worth during the war, still

is geared to a distributive system of pre-war size. Despite the fact that retail store openings may have been increasing at a growing pace, only now has this area's retail population passed the 1941 mark, and it still is considerably out of line with the total population growth.

This situation is being corrected rapidly, and demobilization is helping speed the cure. A lively interest in retailing has been shown by returning veterans, most of whom have a little nest egg which they yearn to use as a starter for independence. U. S. Department of Commerce offices, which try to give these servicemen the benefit of experience and technical information, report fifteen to thirty inquiries per day from commercially ambitious GI's.

Though a great many of these lads lack the practical background which they should have before risking their capital, they make up in enthusiasm and initiative for some of their shortcomings in the way of experience. Their interests seem to range all the way from sports goods and bakeries to merchandising of liquor and confectionery, and these veterans show much imagination in finding new fields of enterprise. Within the past month, say local Department of Commerce men, five different veteran groups have requested data on the aerial transportation field.

Keep 'Em Flying

To a man whose chest is decked with an ace's ribbons, the idea of buying a string of airplanes and hauling freight across the continent seems as natural as pumping gasoline at a filling station. Surplus Army planes, whose prices have been drastically slashed to correspond with the limited market and the rapid model changes to peace-time designs, are an easy approach.

War Assets Corporation's five southwestern air bases, which have been converted into salesroom for a good part of the nation's air fleet, report a sizeable proportion of veterans among their buyers. In the case of a sale of the rather "hot" model AT-6, at \$1500 each, 40 of the first 74 sold went to veterans.


Army training planes that are overpowered for routine civilian flying need no reconversion for service as advanced trainers, and neither do seasoned Army pilots with dreams of flying schools of their own. One ex-colonel bought nine ships at a crack, with this aim in view. Another veteran purchased a fast ship from surplus and immediately put it to work on a contract calling for daily sky-writing of ads above the goggling eyes of thousands of Angelenos.

Kaiser-Frazer Plans

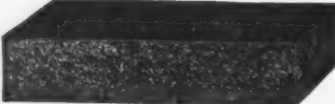
Kaiser-Frazer, in leasing part of the huge Douglas plant at Long Beach for manufacture of a projected 400 cars daily, set the pace for "freezing" a part of southern California's war additions into permanent civilian production. Operations such as this and other automotive assem-

Call **REPUBLIC**
INDUSTRIAL

Mechanical Rubber Goods




RUBBER SHEETING



SPONGE RUBBER

**SUPPLIERS OF INDUSTRIAL
RUBBER TOOLS, CEMENTS,
COATINGS, RODS, TUBING
AND RUBBER LINED PIPE**



RUBBER WORK CLOTHES

THE
REPUBLIC
SUPPLY COMPANY OF CALIFORNIA
INDUSTRIAL DIVISION

2122 East Seventh Street • Los Angeles, California • TRinity 2141
1401 Park Avenue • Emeryville 8, California • Piedmont 7320

bly plants now in various stages of preparation may be counted on to draw in as feeders a great many small firms from the ranks of erstwhile aircraft subcontractors.

The AiResearch plant at Phoenix, just drafted into a new job by the Aviolo Radio Corporation, is another to don peacetime overalls, with the new task of turning out radios and automatic record changer. Vard, Inc., at Pasadena, and the DPC portion of the Weber Showcase plant at Los Angeles, were acquired by their war-time operators, who expect to continue on a scale of operations well above the pre-war level.

Shortages of building materials make it impossible to erect new plants in anything like the normal construction time; hence these war plants, already built and ready for immediate operation, look good to expansion-minded executives, especially since War Assets shows willingness to deal at reasonable appraisals and to help arrange financing. This interest may result in real competition for the operators of former DPC operations when the time comes for them to decide whether or not to exercise their options to buy.

Both Big and Little

Even special-purpose plants have kindled interest in unexpected quarters. Some out-size structures whose extreme roof height was supposed a major drawback have attracted the attention of Hollywood moguls because the vast vaulted ceilings would provide plenty of clearance for movie sets.

The big demand, of course, is for small factories with 10,000 to 20,000 square feet of floor space. There is real need for a big operator with the requisite bankroll and backbone to take one or more of these huge properties and sub-let them to small industry on a "multiple lease" basis, a la Maury Maverick. Experiments along this line at the Douglas Long Beach and Consolidated-Vultee San Diego plants are being watched with much local interest.

Strikes were slow in taking effect here because they were localized mainly in Eastern areas. Now, however, their effect has begun to put a firm brake on expansion plans. Only fortunate ones were some plants lucky enough to have termination inventories from war contracts left on their hands and these have often proved real bonanzas of raw materials.

Rubber, airframe, shipbuilding, chemical, and metal working industries all have been planning substantial personnel increases in the near future, but the fact that all deliveries of steel seem doomed for a big backward readjustment, now promises to send much of this activity into a state of suspended animation.

Unemployment Claims Down

Clouded though the industrial outlook may seem to be by the murk of strikes and material shortages, a healthy readjustment is progressing rapidly in the field where

Old Man Competition Says:

**TOP PRODUCTION
YES... BUT NOW
WATCH COSTS!**



**Roebling materials
can help...**

Successful business operation in the face of growing competition will force utmost economy in production and equipment costs.

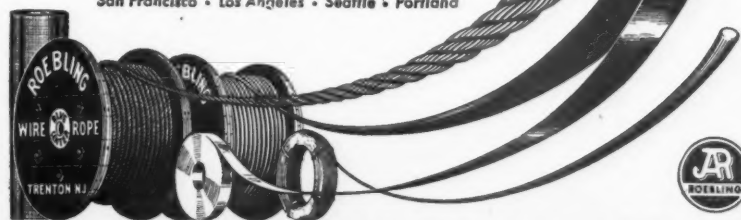
A Roebling product... whether it's wire rope, electrical wire and cable, woven wire screen, strip steel, or round, flat or shaped wire... is a sure step in this direction.

Roebling made America's first wire rope. Over a hundred years of specialization, with *unsurpassed* facilities, have given Roebling the skill and experience that assures top quality.

To get set for competition, get set with Roebling... now!

**JOHN A. ROEBLING'S SONS COMPANY
OF CALIFORNIA**

San Francisco • Los Angeles • Seattle • Portland



ROEBLING

PACEMAKER IN WIRE PRODUCTS

Wire Rope and Strand • Fittings • Slings • Electrical Wires and Cables • High and Low Carbon Acid and Basic Open Hearth Steels • Wire Cloth and Netting • Aerial Wire Rope Systems • Cold Rolled Strip • Aircraft, Swaged Terminals and Assemblies • Suspension Bridges and Cables • Round and Shaped Wire

the war's worst dislocations took place—the employment market. The big impact of V-J cutbacks has now moved along downstream, swelling the number of unemployment claims currently being paid.

This flood tide rose in Los Angeles County from 14,000 in August to 42,000 in September and 78,000 in October, cresting finally at 96,000 in December. Ebbing of this tide already has set in, for new unemployment claims decreased from 13,300 a week in August and September to 9500 in December.

Below the surface of these figures lie deeper meanings not shown even by the creeping rise in employment totals, which U.S.E.S. says have been crawling upward

at the rate of one to two per cent each month. Production in terms of dollars, or in shipments made to waiting distributors, may be misleading under present abnormal conditions, but recent trends in hiring and firing practices show that both the boss and his employees are readjusting their viewpoints swiftly to peace-time focus.

Coming Down to Earth

Industry is putting its employment house in order. Clerical workers are no longer finding desirable jobs easy to get, for the prospective boss now is determined to be sure he is getting a capable and permanent worker—a typist who can really type with speed and accuracy; a PBX op-

erator who not only handles the switch-board well, but who also meets callers with overtones of friendliness in her voice.

The clerk who has been operating on the principle that the customer is always wrong, is marked for replacement and he will go when a courteous and capable successor is found. The fact that bottlenecks in supply lines may delay proposed expansion of working forces gives good opportunity to make these changes and strengthen personnel at leisure.

San Diego is undergoing post-war cramps in a rapid recession from its giddy war boom. As in many other cities, sharp cuts in employment have not caused a vast exodus of people from the area. Civic officials and congressmen appear to be headed for victory in their drive to have the Army's Camp Callan assigned directly to the city, bypassing normal surplus disposal procedures. The city, which owns the land anyway, would demolish the buildings and sell the materials to local home builders, reimbursing the Army for the agreed value of the structure.

Skilled Workmen Wanted

Like other employers, building contractors currently are insisting on skilled journeymen and do not care to hire mediocre workers. Unions are re-asserting pre-war standards and are reluctant to admit new members, except perhaps well-equipped veterans for training or apprenticeship. Despite the explosive housing situation, conditions are far different from the frantic boom days of the early '20's, when any one able to wield a hammer could get a job as "carpenter."

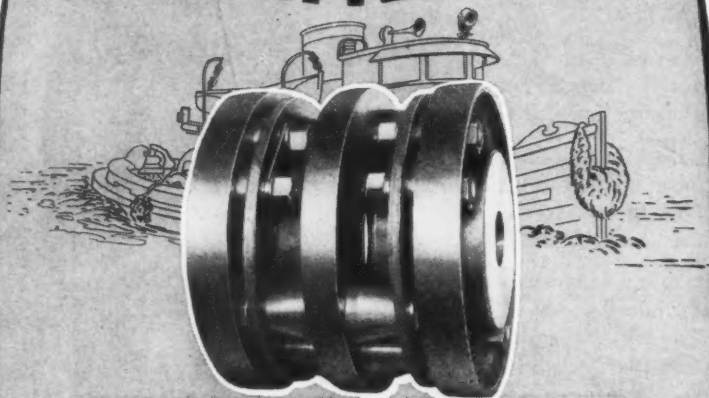
Men vs. Women

Ray Krah, U.S.E.S. State director, points out that a strong tendency to replace female with male workers is erasing much of the change wrought by war. Employment for women, he says, is now resuming much the same pattern as before the war, despite the fact that in many light assembly, testing, and other semi-skilled processes, they proved the equal if not the superior of men.

He might have added that in some instances, the supposed versatility of male employees is actually too costly and fails to add anything to production. While versatility is an asset in plants where operations are typically job-shop in character, the multiple-skilled individual is a great asset. It must be remembered, however, that such labor will always command higher rates, while many of mass production's economies are based upon breaking down complex techniques into simple single-skilled operations.

This war-taught lesson ought not to be lost upon southern California's new industries, now that they are going to face experienced Eastern competition in the mass production field.

This "Link" Assures MAXIMUM FLEXIBILITY



**For Increased Power Drive Efficiency
Consult With Brooks Engineers**

If your power drive has back-lash or serious vibration in it, you are losing money in future replacement and maintenance work, as well as direct power loss. Brooks engineers are trained to correct mechanical shortcomings like these. Call your nearest Brooks office for this competent help.

And, Brooks represents the Thomas Flexible Coupling Company, manufacturer of a complete line of precision built couplings. Full information will be gladly sent on request.

Brooks Equipment Company

SALES ENGINEERS
INDUSTRIAL MARINE PROCESSING EQUIPMENT
636 POTRERO AVE., SAN FRANCISCO 10, CALIF.
SEATTLE PORTLAND
DISTRIBUTORS
NORTHERN CALIFORNIA, OREGON, WASHINGTON

REGIONAL REVIEWS

OLYMPICS TO THE COEUR D'ALENES

SEATTLE—With the New Year well begun, the Northwest Frontier finds some of the phases of its industrial picture to be typical of those current elsewhere in the country, while other phases are peculiar to this section alone. If the phases are classified as typical and special, they would line up about as follows:

Typical

1. Housing—Tight as the well known bark on a tree.
2. Timber—Supply going to the dogs in a hurry.
3. Food Production and Processing—Supply good and processing plants on the increase.
4. Shipyards — Construction of large craft about stopped but outlook favorable for new small boats and repair work.
5. Labor—Has its back up.
6. Aircraft Production—Reasonably good outlook.

Special

7. Transportation — Promising improvement of facilities.
8. Irrigation—Biggest project in country expected to start this year.
9. Power—Probably the largest surplus in the country.
10. Light Metals—Some government, some private plants; the latter crossing their fingers over that enormous accumulated stock of aluminum.
11. Extra Special—The atomic energy plant will continue to operate.

A brief discussion of each of these reveals some interesting facts.

Housing

Every city in the country with a housing shortage feels that it has the worst one. While Seattle's exact place in this unhappy contest (if there be one) is not known, it can't be too far from the front. The city's population has increased at least 100,000 since the war began, indicating a need for perhaps 25,000 more dwelling units. During the war, something less than 5,000 were built. Optimistic natives believe that much of the wartime population influx will depart when its savings are exhausted, but opinion on this is divided.

The agonizing shortage of housing materials is, as everywhere, the biggest obstacle to new houses. Strikes and OPA ceilings have contributed, although a recent 10 per cent boost in ceilings on millwork, brick, pipe, and heating equipment may help.

Veterans' applications have more than met the Northwest quota (probably 10 per cent of the national 100,000 units) of temporary housing units. Some of these are already set up on the campus of the University of Washington, where veteran enrollment may force instruction on a two shift basis by fall. Other than school enrollees, however, vets are not happy at the temporary housing prospects for themselves and their families, saying they have

had their fill of trailers, barracks, and shacks.

Two Washington State efforts at prefabricated homes are getting organized. One is east of the Cascades at Union Gap, near Yakima. The other, with such innovations as radiant floor heating and aluminum sash, is at Tacoma.

Also from east of the Cascades may come some materials relief, in the form of 20 million feet of usable lumber with

many thousands of millwork, plumbing and heating items, all from the dismantling of the Hanford (atomic bomb plant construction) housing project.

Timber

Just exactly what we will do for wood when we run out of timber (or more likely, very low on it) is a moot question. Flying over western Washington shows so many, many square miles of brown, barren slopes that the aptness of the name "Evergreen State" may be questioned.

Optimism on future timber supply is, alas, quite unjustified—at least on the basis of the current scope of remedial measures. The Chief U. S. Forester, in his last annual report, said that privately owned timber in Washington will last but 15

Maas . . . The Only
Manufacturers of Phosphates and
Phosphoric Acid in the Entire West

BRINGS YOU

**Maas Water-White, Pure
PHOSPHORIC ACID**

PREPARED in our modern western plant in a specially designed furnace, this acid is of the highest quality. It is water-white and sparkling and both the 75% and 85% U.S.P. Syrupy meet all the requirements of the federal food and drug law.

Write for full information on the many uses of phosphates.

Write for Technical Catalog now.

A. R. MAAS CHEMICAL CO.

4570 ARDINE STREET
SOUTH GATE, CALIFORNIA



"ARMED FOR CHEMICAL SERVICE"



years longer at the present cutting rate (which won't fall off because of obviously enormous construction needs).

The Washington State Forester recently stated that, because of labor shortages, the State could plant in wartime but 1 million trees per year against the customary 5 million. Currently, a total of 3.5 million board feet become available annually in Washington, whereas annual cutting is 5 million board feet.

Publicly owned timberlands are operated on a perpetual yield basis: cutting is limited to the annual increase available. Even these lands are defended from pri-

vate encroachment only by the laudable efforts of some wide-awake citizens.

Obviously only an enormously expanded governmental tree planting and forest protection program, coupled with increased use of wood substitutes, is going to make lumber available for even one more generation.

Food Production and Processing

Washington State apparently means to do its best to produce lots of calories, vitamins, proteins and what-have-you in 1946. The State's wheat farmers seeded 2,178,000 acres of winter wheat last fall: 34 per cent above the previous year, 62

per cent above a 10 year average and an all-time record. The fruit and vegetable outlook is good and—as previously described herein—food freezing plants are popping up like saloons in the Klondike. Expansion of meat packing plants in Spokane indicates increased output.

One sour note appears in the food harmony, to wit, rows between producers and OPA. Inevitably these concern ceiling prices. Milk is an outstanding example, its production having fallen off because of dairy farmers turning to vegetable raising for more money. The pea growers say they are out on a limb because the Department of Agriculture won't fix on 1946 policy for that crop. OPA "muddling" is blamed by wool growers for drastic curtailment of the sheep industry.

Shipyards

The Puget Sound yards have practically stopped the building of large ships. One of the last to leave the area was the 492 foot destroyer tender Yellowstone from Todd-Pacific in Seattle.

Future activities in large yards will include overhaul, repair, scrapping (ouch!), and reconditioning for return to original owners. Puget Sound Navy Yard at Bremerton expects to keep 10,000 people busy for three more years and plans piers for 26 large ships in Sinclair Inlet near Bremerton.



Valve and piping failures are both costly and dangerous. Here is a simple formula for their prevention:

You can depend on Thaler to adhere to this formula—to supply you with pipe, valves and fittings of the highest quality; to help you with your specifications and with the solution of your piping problems. Let our selection be your guarantee of efficient performance, safety, and economy.

★ The stamp of a reputable manufacturer on every item you install.

★ The careful, expert selection of each item for the job it is intended to perform.



THALER PIPE AND SUPPLY COMPANY

5812 GREEN STREET AT POWELL • OAKLAND 8, CALIFORNIA

IMMEDIATE DELIVERY



Model AR

You can depend upon Redington to make *immediate delivery* of these sturdy, 100% accurate Counters—"Watchdogs of Production." In models to fit punch presses, pumps, screw machines, packaging machines . . . conveyor lines, can making and box making machinery . . . in fact, *all types* of machinery and production lines. Easy to install. Write for Catalog.

F. B. REDINGTON CO.

118 So. Sangamon St., Chicago 7, Ill.

Building and repair of small boats and fishing craft are expected to resume their pre-war importance in Puget Sound cities, when industrial conditions permit.

Aircraft Production

Boeing has enough business for an estimated total of 12,000 personnel by mid-summer when tooling for new models is completed and construction of cargo planes and transports for the Army and Pan-American gets going in earnest.

Down in Tacoma, a yet-unborn aircraft industry, Puget Pacific Planes, Inc., is hustling along on the design and prototype of a twin boom pusher private airplane.

Transportation

An item that catches one's fancy is the proposed Cascade Tunnel.

The last legislature, envisioning a tunnel that would carry a highway, rail lines, and power and communication lines, set up \$10,000 for the State Highway Department to locate and survey the best route.

Waterborne transport is picking up to some extent but is hampered by railroad inability to deliver products—particularly grain—to ports for loading. Intercoastal shipping hasn't been paying because merchants have been so anxious to fill depleted shelves that faster, though higher, rail service has been used. Port improvement projects are afoot in Tacoma, Vancouver (Wash.), Bellingham and Port Angeles.

Irrigation

The Columbia River in central Washington runs through arid territory which has, in developed portions, proven remarkably fertile when irrigated. Irrigation of a major part of this territory is a prime objective of the federal government. The first requirement, water, is provided largely by the Grand Coulee Dam.

Work on the second requirement, distribution, is expected to start this year. The distribution system will comprise canals, siphons, tunnels, pumping plants and secondary dams and will eventually cost over \$100 million. The completed project is expected to serve 17,000 new farms. These with new industries bound to arise in the Columbia Basin, might shift the center of Washington state population from the Puget sound area across the Cascades and bring into reality the "Inland Empire" that Spokane citizens so lustily proclaim.

Power

Cutbacks in wartime electric loads have left the Grand Coulee-Bonneville power system with a surplus generating capacity of 500,000 kw. This army of unemployed kilowatts is dashing around looking for a place to work and their parent, Uncle Sam, will try to help. President Truman's budget message asked for \$15½ million to extend the Grand Coulee-Bonneville distribution system.

Light Metals

This industry is represented in Washington State at four locations. At two of these are privately owned plants, Aluminum Company of America at Vancouver, and Reynolds Metal Company at Longview. Government owned aluminum plants are at Tacoma and Spokane. Those at Spokane were war operated by the Aluminum Company, and leases on them have been signed by Henry Kaiser.

The government has an accumulated surplus of aluminum sufficient to supply the country for at least one year at boom consumption and up to three years at

normal use. Dumping this stock would of course prostrate the industry for a time but if it is released judiciously, the Vancouver and Longview plants have prospects of 50 to 60 per cent capacity operation this year.

Extra Special

It appears that the atomic energy plant at Richland, Washington, will continue in operation: "full" operation, it is stated. Employment will be slightly less than 5,000 workers. Du Pont has a renewed contract to continue operations for an unstated period.

A NEW

IDEA IN

CYLINDERS



AN

OFF THE SHELF

STANDARDIZED

PRODUCT!

Ledeen HEAVY DUTY CYLINDERS

ENGINEERING PRODUCTS CO.

LEDEN MANUFACTURING DIVISION
1400 SO. SAN PEDRO ST. • PROSPECT 7044 • LOS ANGELES 15, CALIFORNIA

A new idea in the manufacture and selling of heavy duty cylinders...Ledeen Cylinders are now available as a completely standardized product, uniform in design and construction, yet applicable to an almost infinite number of varieties and adaptations. It's an off-the-shelf service with immediate shipment possible. * Write for Bulletin 453 for complete data.

ENGINEERING PRODUCTS CO.

LEDEN MANUFACTURING DIVISION
1400 SO. SAN PEDRO ST. • PROSPECT 7044 • LOS ANGELES 15, CALIFORNIA

REGIONAL REVIEWS

THE WASATCH FRONT

SALT LAKE CITY—This area has been given a pronounced psychological lift by recent developments, reports and surmises concerning the Geneva steel plant.

A few weeks ago the public mood was darkly pessimistic. There was a growing feeling that the plant, while basically sound and certain to be operated eventu-

ally, was doomed to a long interim of inactivity.

Hopes began brightening with the announcement that the deadline for submission of bids had been extended from March 1 to April 1. Then Senator Elbert D. Thomas (D., Utah) revealed that the extension had been granted at request of United States Steel Corporation.

The corporation neither confirmed nor denied reports that it was reconsidering its earlier withdrawal from the picture. But the reports dove-tailed with "confidential" information that had been seeping out. Taken all together the developments, both positive and negative, were sufficient to convince the public here that U. S. Steel is "taking another look."

The talk of a big Kaiser steel combine, to include Geneva, is taken seriously in some quarters and as mere talk in other quarters. And some look upon Colorado Fuel and Iron Corporation as the best bet. But in the over-all picture, hopes for the plant's future tend to rise or fall as U. S. Steel's interest in the plant rises or falls.

In short, the belief that the plant fits better into the Corporation's setup than in any other suggested plan is still strong in this area. But naturally, the public would prefer a number of bidders to total reliance upon one.

Lower Production Cost

Meanwhile the production cost factor at Geneva has been improved by some \$3 per ton during the recent months through changes in handling coke. During the war the coke was weak and an excessive amount was required per ton of iron ore. The operators were confident the trouble could be largely overcome by increasing oven temperatures and reducing the cok-



Drillet Box Jig Saves Up to 75% of Jig Body Expense and Labor!

The six-sided Drilllet Box Jig above and at right has a range of 125 different sizes, making it possible to accommodate all sizes up to 6" capacity—for drilling, reaming, counter boring, counter sinking, spot facing, tapping, etc.

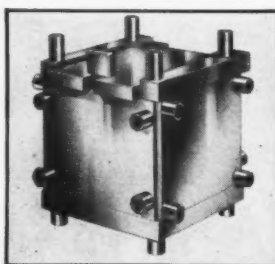
The Drilllet Box Jig makes special tool design for drill jig unnecessary. Saves up to 75% of the time and cost of building a jig body. By merely turning thumb-screws and raising leaf, parts may be quickly loaded or unloaded. The jig may be used on all six sides, taking advantage of its full capacity.

Another useful product is chewing gum. You can enjoy chewing Wrigley's Spearmint Gum even while your hands are busy. The pleasant chewing helps to steady you—helps keep you alert and on your toes when you're doing a monotonous job.

Besides the satisfaction chewing gives you, it helps keep your mouth moist and fresh so you naturally feel better—and feeling better you work better.

Scores of industrial plants report that they have stepped up their workers' morale and efficiency by making chewing gum available to them.

You can get complete information from The Chicago Drilllet Corporation, 920 S. Michigan Ave., Chicago 5, Ill.



Drillet Box Jig in Locked Position



AA-59

F.H.A. LOANS

TO BUY—
REMODEL—
REFINANCE



Long-term and low-cost F. H. A. loans are still available to finance the purchase of homes already built. Monthly payment F. H. A. loans for buying or refinancing homes are made by this bank for as much as 80% of the appraised value of the property with as long as 20 years to repay.

For further information call at our Real Estate Loan Department

CROCKER FIRST NATIONAL BANK
OF SAN FRANCISCO
California's Oldest National Bank
ONE MONTGOMERY STREET
Member Federal Deposit Insurance Corporation

ing time. But the ovens were built by the contractor for a specified range of temperatures and RFC was not disposed to permit experimentation while the facility was producing for war purposes.

In November, 1945, however, coking practices were changed with the result that consumption dropped to 1654 pounds per ton of iron ore compared to 2286 pounds prior to November. In December consumption was 1822 pounds, well below the average of more than 1900 pounds for the Gary and Pittsburgh areas.

Not only was consumption reduced but a stronger coke was obtained. And Dr. J. R. Mahoney, director of the University of Utah's bureau of business and economic research, reports that further improvement is promised by experiments in preheating the coal to drive off volatiles before it is charged into the ovens.

The War Assets Corporation estimates that the improved coke reduces production costs by about \$3 per ton of hot metal.

Mining Situation

The area's No. 1 industry—mining and smelting — epitomizes the paradoxical times. Production is flat on its back (chiefly because of strikes) but mining stock prices are soaring on the local exchange. Shares of non-operating companies appear to be in as great demand as shares of operating companies. In some instances the prospects are more volatile than the stock of operating mines.

That much of the buying is motivated by the gambling urge is indicated by the fact that some eastern buyers have put through purchase orders first and then inquired if the property "is gold, silver, copper or oil."

The strike is following the CIO strategy of taking on the big ones first—Utah Copper, United States Smelting, Refining & Mining and American Smelting & Refining. The miners and smeltermen, represented by the International Union of Mine, Mill & Smelter Workers, are demanding equalization with the Coeur d'Alene, Ida., scales, which generally run 55 cents to \$1.35 per day higher than in this area.

The operators have said "no" and countered with an offer to continue present wage scales and the 48-hour week (eight hours overtime) until the current contract expires June 30. They have publicly committed themselves to negotiate adjustments at that time or whenever "take-home" is reduced by a reduction in hours. From where they sit it looks like the union is trying to get a basic hourly rate increase before the contract expires and then bounce right back with the "take-home issue" to demand whatever increase is won in steel, auto, oil and other industry.

Effects of Strike

Economic effects of the strike have not been pronounced thus far but symptoms

are beginning to appear. For example more than 10,000 idle workers applied for unemployment insurance during January. The number has been ranging from a few hundred last fall to two or three thousand in December. Not all of the increase could be attributed to strikes but a substantial part of it did stem from that source.

And more is to come. For union officials have filed unfair labor practice charges against the struck companies and advised all strikers to file for benefits. Under Utah law strikers become eligible for payments if it is found that employer

violations of state or federal labor laws were causative factors in the strike.

Another cause of growing unemployment is the forced curtailment or closing of non-struck mining operations by lack of smelter facilities. With three of the four smelters in the area closed most mines are compelled to stockpile. And there is a financial limit on how long this can be continued.

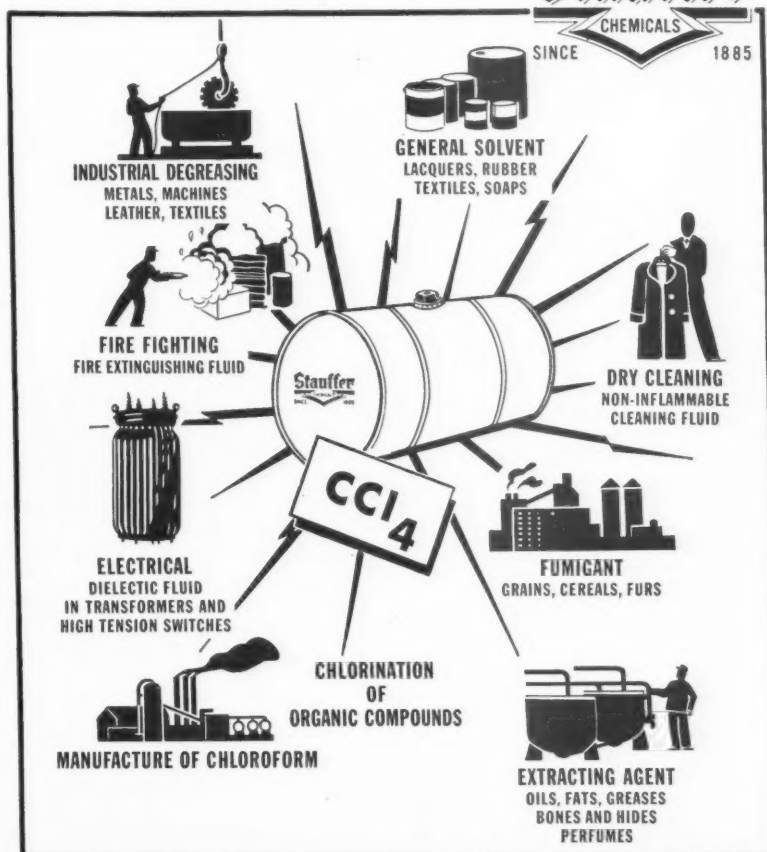
Liveliest spot in Utah at present is the small community of Vernal in the southeast section. Its boom is sparked by oil explorations and plans for more extensive development of the Gilsonite beds.

CARBON TETRACHLORIDE-PERCHLORETHYLENE

Chlorinated Solvents
Basic for Many Industrial Processes

Stauffer
CHEMICALS

SINCE 1885



(This is the third of a series of charts on chemicals and their uses)

Stauffer Chemical Company

SAN FRANCISCO

NORTH PORTLAND

LOS ANGELES

CHEMICALS

FOR INDUSTRY AND AGRICULTURE

LABOR

AND THE INDUSTRIAL WEST

PROBABLY the most significant action of labor in the West during February is the strike vote of the International Longshoremen's and Warehousemen's Union.

All ballots from locals along the Coast were to be in the central office of the ILU by February 21. Since it was virtually a foregone conclusion that by far the greater percentage of the membership would cast their votes in favor of a strike, a substantial number of West Coast industrialists saw the possibility of strike action ahead.

Of course, the taking of a strike vote does not mean that a strike is going to take place. All it means is that the way for calling a strike has been cleared if the vote is affirmative. And in this particular case it is quite possible that the ILU will make chief use of the strike vote in the political field rather than economic.

With the ILU, however, affirmative action has more significance than it has often

had with other unions. Under the militant Harry Bridges it has repeatedly been indicated that the waterfront workers were willing to go to extremes whenever their leaders issued the call. In the present picture there is nothing to indicate that the comparatively peaceful years, speaking labor-wise, of the recent war have made any noteworthy difference in this respect.

Reason for the union calling for a strike vote assertedly lies in the impasse reached by the Waterfront Employers Association and the union in negotiations over a new contract.

The dispute is one that is rapidly becoming traditional—that the one side has broken off negotiations after the other has violated existing agreements. As a matter of cold fact, though, there are plenty of cases on record in which the ILU has indulged in work stoppages such as those at Port Gamble, Hueneme and Portland.

While the difficulties may be settled without the final resort to force, which every strike is, industrialists would do well to consider the appearance of a waterfront strike along the Coast as a distinct possibility. Since strikes have broken out in so many other branches of industry during the past four months, there is little reason to expect that this particular segment of Western economy will be left free of the final course of labor strife.

One thing that might forestall it, though, is that the settlement of other strikes now in existence might set a general pattern for the economy to which labor disputes, late in breaking, could adhere without going to their ultimate forceful conclusion.

If the machinist strike on the West Coast, and the national steel and automotive strikes, together with those now crippling the great cities of the East, are settled in the next few weeks, it is more than likely that the overall basis of their settlement might be found satisfactory for both the ILU and the Waterfront Employers Association. In that case, a strike would be avoided.

Oregon Wage Increases Given

Wage increases in Oregon in the past three months include the following: furniture workers, 10 percent; mattress workers, 11 percent; upholstery workers, 10

THE 3 R'S OF LIGHTING EQUIPMENT



*Responsibility
Reliability
Research*

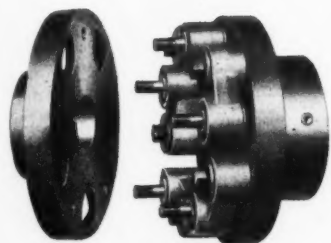


OFFICES IN PRINCIPAL WESTERN CITIES • BRANCH AND WAREHOUSE IN SAN FRANCISCO

FABCO

Flexible Coupling

TYPE R



Install Them-- Forget Them

The Type R Flexible Coupling illustrated above is of the link and pin type with confined rubber bushings which make them ideal for loads with severe shocks and vibrations. Due to the patented design, the bearing surface on the rubber in the line of force remains the same under all load conditions. Being "confined," rubber bushings cannot be overstressed or ruptured, and constant flexing keeps rubber alive. Confinement also protects rubber bushings from moisture, oil, steam and acid. Once installed, they require no servicing . . . both you and we can forget them.

LARGE STOCKS AVAILABLE

These couplings are made in a range of 10 sizes, from 15 to 900 H.P. per 100 r.p.m. Large stocks are carried in Oakland, Los Angeles, Portland and Seattle. We can give very prompt delivery after knowing specifications of finished bore and key seat.

Write for a copy of our catalog
on FLEXIBLE COUPLINGS

F.A.B. MFG. CO.

1249 SIXTY-SEVENTH STREET
OAKLAND 8, CALIFORNIA

percent; casket woodworkers, 12c an hour; retail butchers, 11 percent; retail clerks, 12 percent.

Approved by the Wage Adjustment Board for construction workers in Portland are the following increases: carpenters, \$1.37½ to \$1.55; building workers, 95c to \$1.15; structural steel and iron workers, \$1.65 to \$1.75; concrete rodmen, \$1.37½ to \$1.55.

Work Hours For Women Executives

Women executives in Oregon now have the privilege of working virtually as many hours as they wish, provided they do not total more than 20 per cent above the hours worked by those under them, according to a recent ruling of the Oregon Bureau of the Labor, Wage and Hour Commission.

Ruling of the commission reads as follows:

"The term 'employed in a bona fide executive position' shall mean any employee whose primary duty consists of the management of the establishment in which she is employed or of a customarily recognized department or subdivision thereof, and who customarily and regularly directs the work of other employees therein, and who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring and firing and as to the advancement and promotion or any other change in status of other employees will be given particular weight, and who customarily and regularly exercises discretionary powers, and whose hours of work of the same nature as that performed by employees not employed in an executive, administrative or professional capacity do not exceed 20 per cent of the number of hours worked in a work week by the employees under her direction."

Industrial Relations Work Starts at U.C.

Public interest rather than the special interests of labor and industry will be the chief objective of operations of the Institute of Industrial Relations in the University of California that is to get under way shortly, according to a recent announcement of the university.

The institute provided for by the legislature will furnish short sessions for top officials of labor and industry with outstanding authorities on matters of importance to both groups. Longer sessions will be provided for minor industrial executives and shop steward groups in which attention will be given to more technical subjects. Training in fundamentals will be given in evening courses and seminars.

An advisory committee in each of the two major areas of the state, composed of representatives of labor and industry and the public is planned as a method of aligning the program with the needs of the community and of interpreting the program.



Stuart Oxygen Co.
SAN FRANCISCO • OAKLAND • LOS ANGELES

This carbide is making
acetylene in ten countries
you can depend on it

PACIFIC CARBIDE

Manufactured by
Pacific Carbide & Alloys Co.
PORTLAND, OREGON

Distributed and guaranteed by
STUART OXYGEN CO.

THE WESTERN OUTLOOK... NEWS... STATISTICS...

THE PICTURE

Leaving the national strike situation out of consideration, reports of increasing employment are one indication that the West has passed the postwar corner, but January freight car traffic showed the sharpest drop since September. Nevertheless, expansion projects of all kinds make an imposing total, although only a small fraction are actually under way because of strikes and material shortages. Meanwhile unemployment is increasing at a greater rate than employment. For the major labor market areas in the coast states and in Arizona, unemployment compensation claims rose from 264,732 on December 15 to 331,338 on Jan. 15.

Copper—Output Declines

The smallest monthly output recorded since 1938 was made during November by Western mines. Except for Arizona whose output was relatively unchanged, all other states in the area experienced declines from the October figures that were greater than those to be expected from the difference in number of working days in the two months.

(Tons produced)

	Arizona	Montana	Utah	Total Western including other states
April	25,423	7,540	19,807	52,770
May	26,000	8,613	20,900	55,513
June	24,110	8,218	19,771	52,099
July	22,055	6,651	19,826	48,532
August	22,100	6,340	18,478	46,918
September	21,250	4,061	19,177	44,488
October*	22,000	7,100	17,900	47,000

(*October figures preliminary)

Freight—Western Traffic

Freight movements for the five weeks in December continued to decline in the trend which was established throughout the months of heavy traffic that persisted during the year 1945.

Total traffic figures for all the major railroad carriers in the Eleven Western States from July, 1945 through and including January, 1946 were as indicated below:

	Loadings	Eastern connections	Total
July	960,556	388,440	1,348,996
August	695,277	450,497	1,145,774
September	595,143	310,868	906,011
October	617,023	313,964	930,987
November	535,620	278,746	814,366
December	586,302	302,807	889,109
Jan. 1946	469,139	240,906	710,045

Employment—Eleven Western States

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
March	107	91.6	60.5	258	79.5	109.5	137	38.8	878	619	347	2,487	3,453
April	108	93.0	60.5	257	79.7	109.4	138	39.0	881	615	344	2,467	3,426
May	109	93.0	61.8	263	82.3	108.8	140	42.7	901	611	345	2,402	3,358
June	109	93.6	63.9	263	82.9	107.4	144	42.7	907	616	343	2,414	3,373
July	110	92.9	64.7	263	83.1	106.2	144	43.3	907	612	343	2,419	3,374
August	111	96.0	64.7	260	82.9	99.2	139	43.8	897	577	320	2,285	3,182
September	111	96.0	64.7	260	82.9	99.2	139	43.8	897	577	320	2,285	3,182
October	108	94.6	65.7	260	82.4	97.8	136	42.9	888	526	297	2,231	3,054

MANUFACTURING

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
February	12.0	13.2	4.3	46.4	5.3	19.5	26.5	1.8	125	249	154.9	847	1,251
March	11.9	13.5	4.2	47.2	5.1	19.4	22.5	1.7	126	247	147.0	824	1,218
April	12.1	13.3	4.3	46.9	5.0	19.6	22.0	1.7	125	240	143.0	803	1,186
May	12.1	14.2	4.1	47.0	5.0	19.5	21.7	1.6	125	235	140.5	760	1,136
June	12.0	13.9	4.3	47.5	4.9	16.1	22.0	1.5	124	232	140.7	722	1,095
July	11.9	15.4	4.4	48.4	4.9	17.0	25.1	1.5	129	233	137.9	719	1,090
August	12.4	14.2	4.4	48.0	5.2	16.1	24.9	1.5	127	224	135.1	720	1,079
September	11.6	15.6	4.2	41.3	5.1	8.9	20.7	1.5	109	186	109.7	588	884
October	10.7	15.1	4.7	43.9	5.3	7.5	19.9	1.5	109	147	86.0	539	772

Soft Plywood—Declines Continue

According to figures furnished by the Bureau of the Census.
(thousands of sq. ft., % equivalent)

	Moisture Resistant	Exterior	Total	Logs	Case	Soy Bean	Phenolic Resin
June 1945	88,928	32,355	121,283	51,503	2,222	1,707	1,707
July	60,160	25,419	85,579	39,348	323	1,376	1,376
August	81,548	32,085	113,633	52,233	279	1,782	1,782
September	62,439	27,217	89,656	39,885	178	1,434	1,434
October	41,040	26,422	67,462	30,083	126	1,191	1,191
November	34,040	24,197	58,237	27,342	162	1,122	1,122

Coal—Production Rises

Reports by United States Bureau of Mines—(Tons mined)

	Montana	Wyoming	Colorado	New Mexico	Utah	Washington	Other	Total
July	375,000	790,000	500,000	120,000	510,000	95,000	1,000	2,391,000
August	380,000	768,000	556,000	116,000	502,000	108,000	1,000	2,431,000
September	402,000	854,000	645,000	141,000	566,000	117,000	1,000	2,804,000
October	298,000	851,000	588,000	118,000	492,000	111,000	1,000	2,467,000
November	364,000	870,000	557,000	112,000	531,000	124,000	1,000	2,559,000

Flour Production—Slow Decline

According to figures furnished by the Bureau of the Census.
(bushels reported)

	WASHINGTON		OREGON		CALIFORNIA		COLORADO		MONTANA		UTAH		IDAHO	
	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground
August 1945	17	2,503,772	16	1,457,694	10	826,400	18	828,914	15	635,281	20	645,355	15	334,585
September 1945	16	2,397,880	16	1,315,306	10	909,779	18	823,209	15	733,818	20	610,239	15	325,998
October 1945	16	2,738,276	16	1,494,901	9	1,007,319	18	870,823	16	727,244	22	696,928	15	415,327
November 1945	16	2,532,448	15	1,394,070	9	968,513	18	805,434	16	697,236	22	635,587	15	423,639

Warehousing—More Space Available

Following the trend established in November, the amount of available space in warehouses of the West increased somewhat during December. Percentage of occupiable space that is occupied is as follows in the various divisions of the West. Figures are based on reports from 634 warehousing firms and are made available by the Bureau of the Census, Department of Commerce.

	Mountain and Pacific Division	Idaho	Montana, Utah and Wyoming	Arizona, Nevada and New Mexico	Colorado except Denver	Washington except Seattle	Seattle	Oregon except Portland	Portland	California except L.A. and S.F.	Los Angeles	San Francisco
July 1945	91.4	91.9	85.3	94.1	84.9	77.8	88.2	97.5	97.3	87.4	95.7	94.3
August 1945	91.6	95.0	85.2	92.2	67.3	82.8	91.4	96.3	97.3	85.0	95.0	93.9
September 1945	91.6	95.8	81.7	91.3	51.4	86.5	92.4	95.1	97.3	88.7	96.5	94.0
October 1945	91.9	96.1	93.4	93.4	57.7	84.9	97.5	94.9	97.3	91.3	90.1	91.1
November 1945	92.0	94.5	82.1	94.4	58.4	91.9	93.7	94.9	97.3	91.2	88.3	96.4
December 1945	90.5	94.8	78.4	95.1	59.0	90.6	93.3	95.6	97.3	85.7	84.6	90.8

FROM THE RESEARCH DIVISION OF WESTERN INDUSTRY

Lead—Rise Continues

Tons mined, according to monthly reports of the U. S. Bureau of Mines
Though the daily rate of output of lead mines in the 11 Western states increased somewhat during November from the figures reached in the preceding month, the daily figure was still below that for 1944. In Arizona, however, production for the year was stepped up to a point well above that for 1944.

	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Washington	Wyoming	Total
July	2,035	507	1,361	5,000	1,068	552	590	2,602	152	....	13,867
August	1,861	522	1,404	5,196	822	535	546	3,259	302	....	14,450
September	1,569	650	1,686	4,600	868	508	468	3,030	215	....	13,591
October	1,650	600	1,623	4,800	900	500	492	3,050	270	....	13,885
November (preliminary)	1,180	680	1,455	5,050	1,060	650	629	2,900	200	....	14,434

Zinc—Output Soars

Production of zinc, in short tons, in each of the 9 Western States on a monthly basis is as follows, according to the U. S. Bureau of Mines:

Daily rate of zinc production in the Western states for November climbed to 805 tons from the 738 tons set during October. In Colorado the output was the highest of 1945. Elsewhere, with the exception of New Mexico and California, where a cave-in at the Blue Moon mine in Mariposa County suspended production, the daily production rate was decidedly up.

	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Washington	Total
July	3,426	620	2,985	5,860	2,463	1,184	3,077	1,967	769	28,351
August	3,360	626	2,965	4,663	1,749	2,017	2,759	2,259	716	21,114
September	3,214	991	2,782	5,530	2,268	1,740	2,787	1,899	866	22,089
October	3,575	900	2,258	5,584	2,607	1,700	3,126	2,139	1,030	22,919
November (preliminary)	3,240	860	3,480	5,850	2,550	2,090	2,778	2,325	990	24,163

Gold Production—Yield Rises

Ounces of gold produced monthly by states in 1945, according to the U. S. Bureau of Mines

Gold production throughout the producing areas of the 11 Western states, showing an upward trend since last June, was interrupted by a 2 per cent decline in November because of a large decrease in output of by-product gold from the Utah Copper Company, according to the U. S. Bureau of Mines.

	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Oregon	Utah	Washington	Wyoming
Monthly Average (1944)	9,347	9,781	9,288	2,084	4,168	9,921	577	114	28,685	3,940	2
January	6,730	9,540	8,855	1,100	2,900	9,463	338	81	21,818	4,050	...
February	6,150	9,348	8,944	1,500	3,450	9,567	390	38	22,333	3,760	...
March	7,522	11,104	10,014	1,900	2,744	9,399	500	76	23,187	5,175	...
April	7,073	9,690	7,921	1,900	3,032	7,705	371	55	23,955	5,530	...
May	7,443	10,223	10,197	1,950	2,785	8,951	494	90	24,765	5,537	...
June	6,567	8,451	8,887	1,375	3,218	7,492	375	50	25,152	5,382	3
July	5,600	9,572	8,050	1,810	4,016	5,467	375	332	24,294	5,400	...
August	5,700	9,406	6,969	1,500	4,430	7,576	477	333	21,958	5,794	...
September	5,360	12,679	6,146	1,300	4,620	6,735	456	360	22,650	4,070	...
October	5,500	14,796	7,699	2,200	4,300	5,853	465	856	23,500	4,600	...
November	5,500	17,364	7,653	2,000	4,500	7,316	413	1,092	18,350	4,400	...

Silver Production—Small Fluctuation

Ounces of silver produced monthly by states in 1945, according to the U. S. Bureau of Mines

Little fluctuation in monthly silver production was experienced in the country since last June, according to reports of the U. S. Bureau of Mines. In Idaho production of the white metal increased largely as a result of the expanded output of the Sunshine Mining Company. In California the reviving gold mining industry, together with increased activity in the lead mines, resulted in a greater output of by-product silver during Oct. and Nov. than in earlier months of 1945.

	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Oregon	Utah	Washington	Wyoming
1944 Monthly Average	366,170	64,911	187,403	827,635	591,101	104,970	44,606	1,687	632,756	26,801	(1)
January	327,066	78,799	162,431	775,000	560,916	87,554	38,746	37	497,924	22,400	...
February	292,900	74,501	178,860	745,000	507,336	71,900	38,276	10	504,820	21,480	...
March	338,000	72,282	229,315	943,688	569,600	77,579	46,971	1,276	519,570	28,600	...
April	313,250	71,674	184,541	707,000	477,640	77,113	32,323	7,179	519,800	27,850	...
May	330,700	68,403	201,115	777,318	516,300	100,318	35,590	12	613,180	28,320	15
June	297,000	65,691	179,850	565,650	546,780	69,362	40,262	7	561,525	23,350	11
July	238,200	75,287	182,298	634,975	507,000	78,561	37,166	382	488,280	23,155	...
August	250,470	51,373	203,860	606,137	493,000	78,123	43,485	628	501,405	26,150	...
September	240,000	73,688	202,330	500,530	489,000	70,648	35,037	422	489,685	19,120	...
October	242,000	111,794	171,212	582,000	500,000	89,232	40,035	187	477,000	19,200	...
November	235,000	100,900	162,919	650,000	460,000	81,100	32,884	280	435,000	18,000	...

Iron—Still Up

IRON ORE SHIPMENTS FROM MINES
(Tonnage, according to Bureau of Mines)

	Utah	Wyoming	Calif.	Total
January	175,735	65,318	33,205	274,258
February	138,394	53,619	16,251	208,414
March	182,576	58,934	18,291	260,401
April	190,157	45,253	32,065	267,475
May	185,632	43,047	32,913	261,592
June	164,785	52,461	29,872	247,116
July	142,461	44,434	28,086	214,981
August	176,061	47,430	100,755	324,246
September	142,798	40,838	14,545	198,181
October	141,550	48,932	5,888	196,370
November	129,830	52,214	4,437	186,481

Pig iron and steel production for the Western area of the United States are reported by the American Iron and Steel Institute in net tons as follows:

	Current Month	Percent of capacity	Year to date	Percent of capacity
Pig Iron:				
January	172,223	71.5	172,223	71.5
February	151,409	69.6	323,632	70.6
March	171,151	71.0	494,783	70.7
April	162,738	69.7	657,521	70.5
May	149,184	61.9	806,705	68.7
June	141,334	60.6	948,039	67.4
July	135,740	58.8	1,089,356	66.1
August	104,190	44.8	1,329,286	62.7
September	105,708	43.9	1,434,994	60.7
October	86,986	37.3	1,521,980	58.6
November	120,498	50.1	1,642,478	57.9

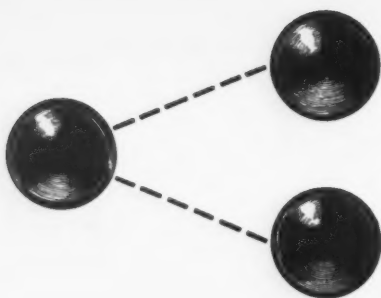
	Current Month	Percent of capacity	Year to date	Percent of capacity
Alloy Steel*:				
January	2,549	—	2,549	—
February	3,489	—	6,038	—
March	5,475	—	11,513	—
April	2,474	—	13,987	—
May	4,423	—	18,410	—
June	4,016	—	22,426	—
July	5,688	—	28,114	—
August	1,331	—	29,645	—
September	4,517	—	34,162	—
October	5,966	—	40,128	—
November	9,078	—	49,206	—
December	4,398	—	52,348	—

	Current Month	Percent of capacity	Year to date	Percent of capacity
Carbon Ingots, Hot Topped*:				
January	52,514	—	52,514	—
February	54,049	—	106,563	—
March	56,450	—	163,013	—
April	51,498	—	214,511	—
May	37,426	—	251,937	—
June	21,144	—	273,081	—
July	9,073	—	282,154	—
August	8,204	—	290,358	—
September	3,623	—	293,981	—
October	8,442	—	319,095	—
November	6,049	—	325,144	—
December	8,379	—	333,523	—

	Current Month	Percent of capacity	Year to date	Percent of capacity
Steel Total:				
January	367,927	88.2	367,927	88.2
February	333,170	88.4	701,097	88.3
March	373,350	88.6	1,074,447	88.7

THE TREND

All factors seem to indicate that if material shortages are overcome to a reasonable extent, the pent-up demand of industry in the West to get going will result in great activity, even if individual strikes do hold back certain industries or localities temporarily. From every quarter in the West come reports that there are more industrial enterprises seeking locations than there are buildings to house them, to say nothing of industries already established here that are ready to enlarge their present structures and add more equipment.



1=2

Sometimes one does equal two.

We proved that when we developed a heat-resisting rubber diaphragm for one of our customers.

One of these diaphragms, which operate at a temperature of 225° F., and flex 1½ times a second, outlasts two of the type our customer formerly used.

Two important savings result. One is that *less than half* as many diaphragms are used during any given period. The other is that *more than half* of the time formerly lost in replacement shutdowns now is saved.

Daily, Oliver research men are creating new compounds for specialized purposes and aiding customers in the design and production of rubber parts and products. If you use, or plan to use molded or extruded mechanical rubber goods of any nature, it will pay you to know and use Oliver research facilities.

Telephone or write for a valuable Data File, giving latest developments in the field and listing Oliver services. It will be sent you without the slightest cost or obligation.

OLIVER TIRE & RUBBER CO.

MECHANICAL RUBBER GOODS DIVISION

65th and Vallejo Streets • Emeryville, California

Telephone Piedmont 5002

THE WEST ON ITS WAY

ARIZONA

MINE CHANGES HANDS—Cedar Talisman Consolidated Mining Co., Salt Lake City 1, Utah, of which J. R. Walter, Jr., is president, has taken over operation of the French Lily Mine in Yavapai County, and plan construction of a 100- to 300-ton mill at the mine site, according to reports.

COFFEE FIRM BUILDS PLANT—Construction of a \$50,000 building at 1220 East Jackson Street, Phoenix, has begun for Barabee Brothers, wholesale coffee roasters and distributors. The structure, 75 x 137 feet, will have reinforced concrete frame with brick curtain walls. It will be one story with penthouse. Space will be subdivided for offices, warehouse, roasting and packing rooms and shipping department. Concrete floors will be at boxcar loading height for r.r. spur that serves rear of building. Large rolling steel doors included.

LARGE WHOLESALE GROCERY—General Sales Company, wholesale grocers, has begun construction of its new warehouse and merchandising building which will cost \$450,000, and be located at Seventh and Grant Streets, Phoenix. Largest building of kind in Southwest, it will contain 1,603,000 cubic feet of space and have a railroad and truck loading platform 600 ft. in length. Building will be 220 x 300 ft. New quarters will have space for frozen foods, vegetables and dry produce storage as well as canned goods.

SHIPPERS ICE COMPANY PLANT STARTED—The \$400,000 plant for the Shippers Ice Company at Six Points, is now under construction. The firm will serve large vegetable shippers and packing sheds at Six Points and Alhambra and will have capacity of 300 tons daily; capacity may be doubled if desirable. Manufacturing and storage unit will occupy building 138 x 262 feet. A large office building in front of plant will face McDowell Road, and second locker and shower building will be constructed for employees.

PEPSI-COLA PLANT COMPLETE—The Pepsi-Cola Bottling Company plant at Phoenix which contains 11,000 square feet of floor space, has been completed. Erected in offset sections it has two units. Space divisions include lobby, general office, manager's office, syrup-mixing room, bottling plant, storage and shipping room, employees' locker rooms and assembly hall.

PIPE LINE WILL SERVE ARIZONA—The El Paso Natural Gas Company's pipe line to Southern California, which will ultimately cost \$15,000,000, will service Arizona with natural gas. The 26-inch pipe line will be built from Lea County, New Mexico, gas field across Arizona to connect near Blythe with line of similar size. The route of the line is now being surveyed.

SUBURBAN SHOPPING CENTER—A new business structure on northeast corner of Thomas Road and Sixteenth Street, Phoenix, at a cost of \$120,000, exclusive of site and fixtures, is being constructed for Walter Ong. It will contain a new market and 11 other shop rooms. The building will occupy a site extending 240 feet on each street, and space units will be approximately 15 x 44 feet. Will be of concrete floor construction, with masonry walls.

NEW BUSINESS BLOCK—A new business block, costing \$60,000, is being erected for Nick Klim at 1640 East McDowell Road, Phoenix. With masonry walls, a canopy over the sidewalk, and exterior trim of glass blocks, structural glass and stucco are included in the design.

SWITZERS PLAN NEW STORE—A structure costing \$75,000 to \$90,000 will be erected on 50-foot frontage, at 25-31 East Adams Street, Phoenix, for Switzers. The building will occupy full width of lot and will extend 137½ feet to alley. Will have full basement and will be 1½ stories with mezzanine. Structure will have 6,850 square feet of floor space.

CALIFORNIA

TIDE WATER PLANS DISTRICT OFFICE BUILDING—Construction has begun on a two story building, costing \$120,000, on property of the Tide Water Associated Oil Company at Front Street and Broadway, in Sacramento. The building which will house the district offices will be of reinforced concrete with stucco finish. It will be of modern architectural design and air conditioned. The 152 x 82 foot building will accommodate approximately 65 employees.

LOCKHEED FORMS NEW COMPANY—Lockheed Aircraft Corp. has purchased the total capital stock of Pacific Engineering Corp., Los Angeles, to merge it with the Lockheed subsidiary, Airquipment Co., which will manufacture ground handling equipment including hydraulic jacks and hoists and service tools. H. E. Ryker is pres. of new subsidiary.

BOWIE SWITCH CHANGES HANDS—The Bowie Switch Company, pioneer San Francisco firm, has been acquired by the A. B. Chance Co., of Centralia, Mo.; J. T. Isbell has been appointed vice pres. and Pacific Coast mgr.; and J. A. Martin named Pacific Coast plant mgr. Firm will be known as Bowie Switch Division and A. B. Chance Co. and will continue to manufacture pole line equipment and maintenance tools.

LIBBY, McNEIL PLANS NEW BUILDING—A new \$300,000 receiving and processing building is planned by the Libby, McNeil & Libby cannery at Sunnyvale. Structure will be built east of and adjacent to present plant site.

ENGEL AIRCRAFT EXPANSION CONTINUES—Engel Aircraft Co., Escondido, is expanding size of airport. Plans call for a field 5,000 ft. in length which will accommodate cargo-carrying planes. Ranch land has been purchased by Mr. and Mrs. John Engel and the airport strip will be given when board of supervisors approves airport district.

NEW FURNITURE FACTORY IN OFFING—The California Divan Company of which A. V. Marchetti, 1829 W. Sixty-second Street, Los Angeles, is president, has taken an option on property in the Inglewood area as site for a new furniture factory reputed to cost \$1,500,000.

BEECHNUT CANNERY—The contract is awarded for general construction of a reinforced concrete fruit and vegetable cannery costing \$52,935 to be built on a 23-acre site in San Jose, structures consisting of main manufacturing building, boiler house, finished stock warehouse, and cold storage unit, and built for the Beechnut Packing Co., Canajoharie, New York.

JOHNS-MANVILLE EXPANSION—Plans are being completed for extensions to present transite pipe factory at 223rd Street and Alameda Blvd., Watson, for Johns-Manville, 816 W. Fifth Street, Los Angeles. The expansion involves an addition to the factory 50 x 700 feet in area, and construction of a warehouse building. Cost is estimated at \$700,000.

FROSTORAGE TO BUILD AT WOODLAND—Plans are being completed for construction of a \$500,000 cold storage warehouse plant in Woodland, for the Frostorage Company, Oakland.

SHELL CHEMICAL TO MAKE MORE AMMONIA—An expansion program expending more than one million dollars this year which will double the output of ammonia and ammonium sulfate at Shell Point, near Pittsburg, Calif., has been announced. The company has started construction already on its new office building at Shell Point which will be two stories of reinforced concrete with block-stone finish.

AUTOMOTIVE FIBRES TO MANUFACTURE FURNITURE—National Automotive Fibres Corp., largest supplier of upholstered equipment for automotive manufacturers, has completed plans for manufacture of furniture in Bay Area. The operation will require an expansion of 65,000 square feet in the Oakland plant and a sizeable expenditure for new construction and equipment.

FORGE COMPANY EXPANDS—James Forge Company has opened new and enlarged quarters at 5241 E. Firestone Boulevard, South Gate, Calif. The company is equipped to handle forgings with a 4000 lb. steam drop hammer, die size 29 x 32 inches, 100-ton trimmer; 2000-lb. steam drop hammer, die size 16 3/4 x 20 inches, 70-ton trimmer; and 2000-lb., 1000-lb. and 600-lb. open frame forging hammers. The company moved from 2213 W. Compton Blvd., Compton.

SOLAR AIRCRAFT ACQUIRES SUBSIDIARIES, PLANS NEW LINES—The Hubbard Casket Company, a California corp. and subsidiary of Solar Aircraft, has taken over the Hubbard Casket Manufacturing Co. of San Diego which will continue its previous local business and market nationally a line of stainless steel caskets made in San Diego plant. The Aircraft concern also acquired Solar Precision Castings, Inc. The company has developed midget auto body kits during its reconversion period. The body kit which weighs just under 100 pounds, produces a sleek stream-lined low hung car capable of withstanding grueling strains, and will be made of stainless steel. The company also is installing induction furnaces and equipment for entering the stainless steel foundry business. Company plans to produce its own stainless steel.

CHEMICAL COMPANY EXPANDS—West End Chemical Company, West End, Searles Lake, Inyo County, has awarded the contract for expansion of its plant, involving additional housing and plant improvements to cost approximately \$750,000. Plant changes will include installation of a battery of stainless steel heat exchangers, a compressor which will increase plant refrigeration by 200 tons a day, 20 carbonating towers, a new boiler, and other improvements.

NOW...

WEATHERPROOF with ALUMINUM!

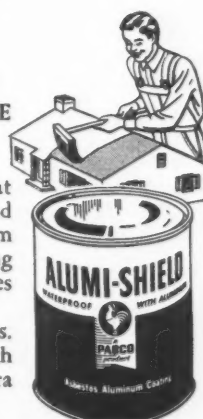
Revolutionary New
PABCO
ALUMI-SHIELD
Aluminum - Asbestos - Asphalt
COATING

Lengthens Life Of

- *OLD ASPHALT ROOFING
- *GALVANIZED IRON
- *COMPOSITION SHINGLES
- *BRICK, STUCCO, CONCRETE SURFACES

At last!—A 3-in-1 coating that combines the *extra* durability and coolness of a soft, silvery aluminum finish and the *extra* strength of long asbestos fibres with all the qualities of finest asphalt!

Reflects up to 80% of Sun's rays. In summer, it cools interiors as much as 15%. In Winter, it brings extra resistance to rain, wind and cold!



PABCO ALUMI-SHIELD ROOFING

Pabco Alumi-Shield brings the advantages of a metallic aluminum surface on finest quality asphalt roofing! Lasts unbelievably long because the aluminum surface is much more impervious to sun, rain, wind and cold!

LOOK

in the
"Yellow Pages"
for your local
PABCO
dealer

THE PARAFFINE COMPANIES, INC.
SAN FRANCISCO 19

Makers of Pabco Paint, Roofing, Building Materials,
Pabco Linoleums, Pabco Mastipave Heavy Duty Flooring



PRODUCTION CONTROLLERS!

RUST-PROTECT PARTS

MONEY-SAVING OAKITE WAY

Only a very thin film of Oakite Special Protective Oil, applied before wrapping, will inhibit indoor rust on parts marking time before shipment from feeder to assembly plants . . . then again while parts await use on assembly floors.

Oakite Special Protective Oil provides economical and dependable protection against indoor moisture and humidity. Its thin transparent coating successfully displaces water and moisture; protects parts from fingerprint corrosion; makes gauging easy and accurate; and does not discolor precision-machined surfaces.

There are a host of additional applications for this rust preventive in your production set-up. Write TODAY for FREE 16-page booklet of low-cost applications!

OAKITE PRODUCTS, INC.

LOS ANGELES (12).....1001 East First St., Tel. Madison 1544
SAN FRANCISCO (7).....115 Townsend St., Tel. Douglas 5640
OAKLAND (7).....1505 Wood St., Tel. Glencourt 2750
SAN DIEGO (1).....310 Fifth Ave., Tel. Franklin 0312
SEATTLE (4).....95 Connecticut St., Tel. Main 1207
PORTLAND (9).....1238 N. W. Glisan St., Tel. Broadway 1281
STOCKTON.....401 W. Weber Ave., Tel. Stockton 6-6564
SPOKANE (8).....E. 41 Gray Ave., Tel. Riverside 8063

OAKITE *Specialized* **CLEANING**
MATERIALS • METHODS • SERVICE • FOR EVERY CLEANING REQUIREMENT

FORGINGS

Skillful forging reduces finishing costs
Heat treating insures maximum strength

TINY OR TON SIZE—WE SPECIALIZE

Craftsmen in steel for two decades

ISAACSON
IRON *Seattle* WORKS

THE WEST ON ITS WAY

NEW PLANT FOR BRANNAN BROS.—Brannan Bros. has recently opened a plant at 5025 E. Slauson, Maywood, Calif., where they will specialize in flame hardening, pickling, and passivating. J. H. Brannan and L. V. Brannan are firm members. The former comes from Corpus Christi, Texas, where he was associated with Amsco Refining Co. The latter was with Waldrup Engineering Co., Los Angeles.

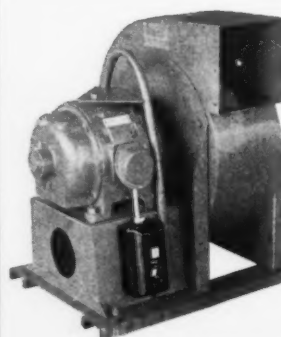
COLORADO

COLORADO INTERSTATE COMPRESSOR STATION—Improvements now being rushed to completion by the Colorado Interstate Gas Company, Denver, include a new half million dollar compressor station, ten miles east of Colorado Springs and installation of additional compressors and engines at six other stations from Bevens, Tex., to Devine, Colo., near Pueblo. New compressors will increase capacity of twenty-inch pipeline from Colorado Springs to Denver, by about 8 million cubic feet a day.

AMERICAN SMELTING & REFINING CO. REFURBISHING LEADVILLE MINE—The Garbutt mine, unworked for almost ten years, has been rehabilitated by A. S. & R. crews, shaft retimbered and new hoist erected. Underground development is planned and diamond drill work anticipated later. The Leadville milling unit of the company is now in operation.

NEW LAB FOR GATES—Plans are being drawn for the planned four-story laboratory building for Gates Rubber Co., Denver, which will cover an area 100 x 300 feet, to be of steel frame construction, with brick walls, composition roofing, cement and wood floors, steel sash, and metal doors.

LOWRY FIELD TO HAVE PEACETIME ROLE—Six new technical training schools and three major air force activities have been added to the Denver military installation, making it one of the largest and most important peacetime bases of the Army Air Corps. The AAF specialized supply depot has been moved from downtown Denver to the field.



ALADDIN BLOWERS

- EFFICIENT
- ECONOMICAL
- SERVICEABLE

Available for Immediate Delivery

Our line includes the "BB" fans of the backward curved blade type and the "FC" fans of the forward curved blade type for general ventilation. The "EX" fans for exhausting and conveying dust, fumes, shavings, etc. "RB" fans for general exhaust duty where there is danger of "blade loading" due to grease, etc. "HP" fans for small volumes at higher pressures.

Write us about your problems

ALADDIN HEATING CORPORATION

2222 SAN PABLO AVE.

OAKLAND, CALIF.

INDUSTRIAL PROPERTIES Sales • Leases • Appraisals

COMPLETE COVERAGE

Up-to-the-Minute Lists

Warehouses • Buildings • Lofts • Plants • Factory Sites
Dismantled Steel Buildings



COLDWELL, BANKER & COMPANY
REALTORS

67 Sutter Street
425 - 15th Street
523 W. 6th Street

SAN FRANCISCO 4
OAKLAND 12
LOS ANGELES 14

Phone: SUTter 5420
Phone: GLencourt 7300
Phone: MADison 7811

AIR MODIFICATION CENTER NOW DENVER'S—The Continental-Denver modification center property at Stapleton airport has been formally transferred to the City of Denver. Space will be leased to Braniff Airways, Inc., Continental Air Lines, Inc., United Air Lines, and Western Air Lines, Inc. Included in the transfer are two hangars, with a floor space of 186,000 square feet.

IDAHO

LUMBER FIRM TO EXPAND—The Post Falls Lumber Company, Post Falls, purchased recently by H. O. Schumacher, Spokane, plans an expansion program including addition of a planer and a lath mill to present property, and doubling of logging operations.

WORK BEGUN ON QUICK-FREEZE UNIT—The \$200,000 Nampa plant of the J. R. Agen Company is now under construction. Plant is expected to be completed by June 1. Building is to be 420 x 80 feet in size. Agen company plans to process lima beans, asparagus, strawberries, corn, and fruits in season.

SUNSHINE BEGINS BIG CREEK WORK—Sunshine Mining Company, Kellogg, has taken over development of the Big Creek property of the Big Creek Apex Mining Company at deep levels of the Jewel shaft. From the 3700 level of the Sunshine a crosscut will reach the Big Creek ground within 300 feet. The mine is said to contain silver, copper, and antimony.

CO-OP SELLS OUT TO IDAHO POWER—The Long Valley Power Co-operative, Inc., has sold its Rural Electrification Administration system to the Idaho Power Company, a private utility, for some \$200,000. The system has been in operation four years. The Idaho Power Company plans line extension to new farm customers when weather permits.

PAPER BOX FIRM NEARING COMPLETION—Equipment for the Idaho Paper Box Factory at Midway is being installed. Company plans operation at Midway while building at Caldwell is being constructed. Paper boxes for shipment of fruits and vegetables will be manufactured.

FIRMS INCORPORATING AT BOISE—Aviation Industries, Inc., of Coeur d'Alene, to engage in "general aviation business," and incorporated for \$100,000 by H. A. Buroker, Gladys S. Buroker, and M. V. Sparlin, all of Coeur d'Alene; Lexington Silver Mines, Inc., of Wallace, capitalized at \$350,000, and incorporated by J. V. Grismer, C. F. O. Merriam and Beatrice McLean, all of Wallace; and Carlton Wood Products Company, Payette, capitalized at \$100,000, and incorporated by C. E. Carlton, S. R. Carlton, and Betty S. Burton, all of Payette.

GOLONDA TO RESUME OPERATIONS—A crew is at work at the Golconda property near Wallace cleaning up and retimbering the main haulage tunnel preparatory to resuming development work. The mill itself has been running continuously at capacity on custom ores.

MONTANA

BREWERY EXPANSION PLANNED FOR GREAT FALLS—Sick's Great Falls Brewery, Inc., plans an expenditure of \$130,000 for installation of machinery and enlargement of the bottling department of plant.

ANACONDA COPPER MINING COMPANY BUILDING FOR EMPLOYEES—Employees of Anaconda Copper at both Butte and Great Falls will be recipients of new clubhouses and recreation centers as war memorials to local employees who entered armed forces and to those who remained on the job during the war as well. The Great Falls center will be of brick, concrete, and steel construction and located near present golf club at smelter. It will be a two-story structure 146 x 52 feet, including a main clubroom, eight bowling alleys, kitchen, bar, and other facilities. At Butte the old Thornton Hotel building is being renovated. Smelter workers at Anaconda will have a similar establishment according to company advisers.

NEW POLE TREATING PLANT EXPECTED—Hiawatha Forest Products Company, Detroit, plans establishment of a new pole and post treating plant in Montana. The plant will produce railroad ties, supply and treat poles and posts for commercial use, and ship pulpwood to industrial users.

CONCRETE PRODUCTS PLANT—Concrete Products Co., a new firm, plans erection of a \$80,000 concrete block plant at Billings with a capacity for 45,000 blocks daily. The plant will be able to produce pre-cast stone.

TOY MAKING—Alvin and Oliver Schubert, Chinook carpenters, have begun the manufacture of toys; wooden toys including models of jeeps, wrecker trucks, wheelbarrows, doll buggies and a "bouncing bunny" animated toy are included in their line.

MINE CHANGES HANDS—The Taylor-Knapp Co., Spokane, has acquired the entire holdings of the Moorlight Mining Company at Philipsburg, which for a number of years has been the largest producer of battery manganese ores in the U. S.

VALLEY ELECTRIC EXTENSION WORK BEGUN—Approval has been granted by the REA for construction of a power line by the Valley Electric Co-op, Inc., Glasgow. Present expenditure is estimated between \$140,000-\$195,000.

**You do it faster,
more easily, with
this guaranteed**

RIGID

**HEAVY-DUTY
PIPE WRENCH**



**This means no more wrench
housing repair expense!**

● Pick up a **RIGID** by the powerful comfort-grip I-beam handle and it feels like an unusually efficient wrench. It is. The precision-cut alloy jaws grip pipe firmly, let go instantly. Adjusting nut spins easily in all sizes, won't bind. You like the handy pipe scale on the full-floating hookjaw, the replaceable heeljaw. And the guaranteed housing assures you long



RIGID Strap Wrench.

expense-free service — most for your money.

Ask your Supply House.

★ RIGID ★

WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

Reduce Return-Line Corrosion with MAGIC BOILER PRESERVATIVE

Gases which carry over and cause deterioration of return lines are first generated in the boiler.

Soda ash, tri-sodium phosphate, caustic and tannic treatments allow the impurities that are splitting up at different temperatures in the boiler to be carried over with the steam and aggravate return-line corrosion.

MAGIC Boiler Preservative will greatly reduce this corrosion because Magic contains no soda ash, caustic, tannic or any other acid. Dissolved in the boiler water, Magic binds acid gases and represses their liberation and forms "the film of protection" on boiler metal. It also stops scale formation.

Magic is non-volatile. It will not evaporate or distill over with steam. The steam will be pure and free from any chemicals or injurious gases. Steam from boilers using Magic can be used directly in processing industries without injury to the products.

WRITE or PHONE Today for a
Garratt-Callahan Service Engineer

MAGIC BOILER PRESERVATIVE
GARRATT-CALLAHAN CO.
of California

150 Spear St., San Francisco 5, Calif.
Phone: DOnglas 3029



Warehouse Stocks and Service Engineers in Principal Cities

Power Booster to PRODUCTION

Rapid-Power Boosters are dependable power belt conveyors that can be wheeled into place and put to work at a moment's notice. Easily adjusted to the job to be done. Manufactured in three standard lengths of 10, 12 and 15 feet and in widths of 12 and 16 inches.

Give your production that necessary boost! Put this tireless "Man Friday" to work for you... get new dividend-paying standards of speed and efficiency. Send for free copy of this new, complete catalog today!



— DISTRIBUTED BY —

E. C. Buehrer Assoc's., San Francisco 7, Calif.
M. E. Canfield Co., Los Angeles 13, Calif.
Murry Jacobs Co., Seattle 4, Wash.
Oregon Handling Equipment Co., Portland 9, Ore.
Murray Sales Co., Denver 4, Colo.
The Horsley Co., Ogden, Utah.



OFFICES IN PRINCIPAL CITIES

Manufacturers of
STEEL FORGED CASTERS - TRUCKS & CONVEYORS - POWER BOOSTERS

The Rapids-Standard Co., Inc.

Sales Div.—374 Peoples Nat'l Bk. Bldg., Grand Rapids 2, Mich.

THE WEST ON ITS WAY

BILLINGS OIL AND GAS FIRM INCORPORATED—The Electron Oil & Gas Corp. of Billings has been incorporated at \$100,000 to conduct a general oil, gas and mining development business. G. E. Witherup, Mary E. Witherup, and Floyd C. Blick, all of Billings.

CAT CREEK STILL BOOMING—British Dominion Oil & Development Co. of Alberta has paid \$100,000 for a half interest in 640 acres and three wells to be drilled with rotary tools.

NEVADA

URANIUM DEPOSIT FOUND IN ROUND MOUNTAIN MINE—A promising deposit of Uranium ore is being developed by John A. and Perry A. Henebergh on claims in Round Mountain district. The location is about a half mile north of the old Fairview mine at Round Mountain.

DAISY MINE SOLD—Mark Bradshaw, veteran Nevada mine operator, has purchased the Daisy gold property in the Diamondfield section of the Goldfield district and plans sinking of two or more of the old shafts to greater depth, extensive lateral development, and construction of a cyanide mill. Some custom ore from other properties will be treated at the mill.

UTAH MEN REOPENING RICH HAMILTON MINE—The Utah Nevada Tungsten Co., Inc., Salt Lake City, has purchased the Tonopah Belmont Development property known as the Nevada Belmont mine in the Hamilton or White Pine district 40 miles northwest of Ely. The mine is equipped with a 100-ton flotation mill, served by a 9200-foot aerial tramway from the main tunnel. Company plans operations in the spring.

NUNN COMPANY EXPANDING SAND PRODUCTION—The capacity of the processing plant and quarry equipment of the Nunn Company at Overton to produce sand for glass manufacture on the West coast will be doubled. New construction will increase production from 7500 tons to 12,500 tons a month. All electrical equipment will be installed. A new compressor is on order.

UTAH GROUP HAS MERRIMACK MINE—The Union Chief Mining Company, a Utah corporation, has acquired holdings of the Merrimack Mine in Silver Canyon, 60 miles northeast of Ely. Expansion of present production facilities is planned.

For Solid Sales During the Competitive Years Ahead

A NEWLY STAFFED FIRM OF ADVANCED
PRACTICAL IDEA MEN
OFFERS

**A Complete
ADVERTISING - MERCHANDISING
and MARKETING SERVICE**
for the
MANUFACTURER

- ★ Modern Package Design
- ★ Displays that Sell
- ★ Full Production Service
- ★ Market Surveys and Analyses
- ★ Trade and Consumer Advertising—All Media
- ★ Publicity
- ★ Promotional Campaigns
- ★ Research

**A New Organization of Expert Specialists
Applying Art to Commerce**

Inquiries Confidential

NEWCOMB - SWITAL & ASSOCIATES

4123 San Fernando Rd., Glendale 4, Calif.

Direct Inquiries to

Post Office Box 1108, Hollywood, Calif.

Representatives in principal cities of U.S., Canada, Alaska, Mexico and the Americas south of U.S. Liaison relations with countries across the waters.

YEAR HERE 

WESTERN INDUSTRY

503 Market Street, San Francisco 5, Calif.

YES! Please enter me as a **PAID SUBSCRIBER**—for _____ YEARS.
My \$ _____ remittance is enclosed.

Name _____

Address _____

City _____

Zone _____

State _____

Position _____

Employed by _____

SUBSCRIPTION RATES

One Year, \$2.00; Two Years, \$3.00; Three Years, \$4.00,
to addresses in the United States and countries not
requiring extra postage.

The **THREE-YEAR** offer represents a real saving and
assures you of timely information on the rapidly-
growing industrial West during coming months. Send
us a check—we'll do the rest.

Postage
Will Be Paid
by
Addressee

No
Postage Stamp
Necessary
If Mailed in the
United States

BUSINESS REPLY ENVELOPE

First Class Permit No. 3755, Sec. 510, P. L. & R. San Francisco, Calif.

WESTERN INDUSTRY

503 Market Street

San Francisco 5, Calif.



FROM

Name

Address

City

State

ANACONDA LEAD MINE TO BE EXPANDED—Lead production by the Darwin Mines Company, a subsidiary of the Anaconda Copper Company, in the New Coso district a mile northwest of Darwin is now exceeding 500,000, and company plans to increase output materially.

EUREKA HAMBURG MINING COMPANY PLANS OPERATION—The company which recently purchased the Anna Marie placer mine plans operation this spring. The mine is in northern Humboldt County.

NEW MEXICO

ALBUQUERQUE GAS & ELECTRIC PLANS EXPANSION—As soon as materials are available construction will be begun on a \$1,000,000 program of the Albuquerque Gas & Electric Co. expansion. It will double the supply of natural gas for Albuquerque and Santa Fe.

NEW MEXICO POWER PROPERTY AT DAWSON CHANGES HANDS—The Trinidad, Colo., Electric Transmission Railway & Gas Co. has purchased the Dawson division utility property of the New Mexico Power Company, for \$526,101.

NEW DRY ICE WELL—The Carbonic Chemicals Corp. has drilled in a new gas well of 2,000,000 cubic feet capacity which will increase Harding County's production of carbon dioxide gas. The new well is on the T. E. Mitchell & Son ranch in Ute Valley. Gas will be piped to the 20-mile line which supplies the Solano plant.

JEWELRY AND NECKWEAR MANUFACTURING—The Bell Indian Trading Post, established and operated by Jack Michelson of Albuquerque, is building a million dollar plant for the manufacture of costume and Indian type jewelry and handloomed neckwear at 1503 West Central Street, Albuquerque. The building will be 350 feet long. New structure will be one of the largest factories for jewelry production west of Chicago.

SWANK RESORT AND TOURIST HOTEL PLANNED—A swank \$525,000 resort and tourist hotel will be erected on eastern edge of city with construction to start in about 60 days. Glen Atterbury, founder and stockholder of Petroleum Products Corp., and two eastern associates will finance the deal. It will be of Southwestern architecture, with accommodations for several hundred guests, and a dining room seating 750, a cocktail lounge and swimming pool.

OREGON

NEW STEEL PLANT—Mercer Steel Co., Inc., N.W. 25th Avenue and Nicolai, Portland, is building a new plant, 100 x 250 feet, reinforced concrete, costing \$100,000.

QUICK-FREEZE PLANT—Hudson-Duncan Company plans a \$350,000 canning and quick-freezing plant in the Portland area.

NEW COMPANY—Western Trail Furniture Company, Portland, is now in production on wood garden furniture.

FARMER'S DAIRY COOPERATIVE EXPANDS—A new garage and warehouse building, estimated to cost \$60,000, will be erected by Farmer's Dairy Cooperative, at 50 N.E. Cook Street, Portland.

PACIFIC CHAIN TO BUILD—Pacific Chain and Manufacturing Co. is building a new plant on a 12-acre tract in the Guilds Lake area, Portland, which will cost \$250,000. The plant will be on N.W. Yeon Ave.

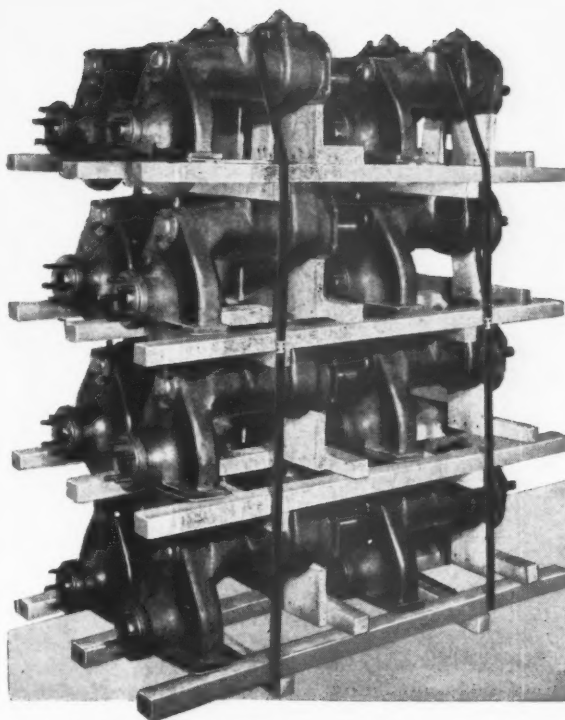
OFFICE & WAREHOUSE—Pacific Wire Rope Co., 1223 N.W. St., Helens, Portland, plans a one-story 80 x 180 ft. office and warehouse building at a cost of \$50,000.

GRAIN ELEVATOR—Construction of 500,000-bushel grain elevator, consisting of reinforced concrete headhouse, concrete storage bins, steel frame truck-receiving shed and track shed, offices and switchroom is planned for Tulana Farms at Malin.

ANOTHER WHEAT DEXTROSE PLANT—Some \$1,000,000 has been pledged for another Northwest Chemurgy Co-operative wheat dextrose plant to be built at The Dalles. Tentative site chosen by the co-op is the former Kaiser company sub-assembly shipyard west of the city limits. A seven-acre tract will be required. Plant will absorb expected future wheat surpluses in region. Plans call for construction of a concrete building six stories high on one side and three stories high on other.

IRON ORE AT SCAPPOOSE—A Bureau of Mines report estimates that five iron-ore deposits near Scappoose, Ore., contain nearly 7,750,000 short tons of ore. The ore ranges between 40 and 59 per cent iron, with rather high phosphorus and some manganese, the bureau said.

BEAVER DEPOT TO OPERATE—Beaver ammunition storage point, near Clatskanie, will continue to operate in discharging all ammunition and high explosives of the Army that are being returned from the Pacific theater to the West Coast, advices reveal.



ACME UNI-PAK

Reduces

HANDLING COSTS



By using the *Acme Uni-Pak* method, packages, semi-finished parts, or finished products are shipped and handled in one unit. The use of *Acme Steelstrapping* alone or in combination with a skid or pallet makes this method possible. Acme Uni-Pak lowers handling costs for you and your customers and increases shipping protection.

LOS ANGELES 11 SAN FRANCISCO 7 SEATTLE 4 PORTLAND 9

ACME STEEL COMPANY

**ACME STEEL CO.
CHICAGO**

WANTED PRECISION PATENTED ITEMS

We will purchase Patented items or Manufacture on Royalty Basis
Parts needing Highly skilled Precision machining, Center-boring, threading Polishing and lathe Turning . . .

YOU CAN
DEPEND
ON

TURRET
AND
ENGINE LATHE
PRODUCTS

Phone THornwall 1131

De Young Bros. MACHINE SHOP
8721 METTLER STREET • LOS ANGELES 3, CALIFORNIA

New!

"PULMOSAN" RESPIRATOR

for
PNEUMOCONIOSIS-
PRODUCING AND
NUISANCE DUSTS



MODEL "M . 500"

BM 2150—Bureau of Mines Approved

SAFEGUARD THE HEALTH OF YOUR WORKERS

by supplying them with "Pulmosan" face-fitting Respirators . . . The New M-500 Dust Respirator has the U. S. Bureau of Mines approval . . . BM-2150 for Pneumoconiosis-producing and nuisance dusts. This new filter unit provides large filtering area in a compact space and is easily cleaned for repeated use.

Unusually easy breathing, light and comfortable over long periods. All parts are replaceable at very low cost.

■ Write for descriptive literature of "PULMOSAN" Industrial Safety Equipment — No obligation of course

Sharpe
MANUFACTURING COMPANY

1224 Wall Street

PRospect 4368

LOS ANGELES 15, CALIFORNIA

THE WEST ON ITS WAY

UTAH

ICE-MAKING PLANT—Utah Ice & Storage Co. has awarded contract for construction of an ice-making plant at 430 W. Second Street North, Salt Lake City, to cost \$200,000.

WASHINGTON

MORE COKES—The Coca Cola Company plans a new bottling plant at Vancouver, which is estimated will cost \$250,000.

BREWERY ADDITION—Interstate Brewery Co. will build addition to their Vancouver plant which will cost an estimated \$225,000.

GRAPE JUICE—The Welch Grape Juice Company is considering a \$150,000 processing plant in the Wenatchee area. The company is now shipping Concord grape root stock for planting to the area.

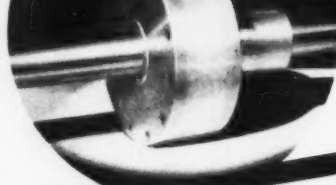
REMODELING WORK—The Aluminum Company of America, Vancouver, is remodeling and installing a ventilating system at an estimated cost of \$150,000.

WILSON EQUIPMENT EXPANDS—A masonry building, one-story high, 120 x 100 feet, with large display rooms and offices in the front and a garage and repair shop in the rear is being built by the Wilson Equipment Co., Auburn.

FARMING EQUIPMENT FIRM—Production of farm machinery is under way at the Walker Co. plant at 2116 Western Ave., Seattle. The company is manufacturing in metal, wood and plastics and plans to market its own products. The company moved to Seattle from Oakland.

DAIRY EXPANSION—The Lower Columbia Dairy Co-op. Assn. plans construction of a one-story extension to an existing dairy plant at Astoria, Wash.

THE HILLIARD *Over-Running* *Clutch*



A "Free Wheeling" Clutch of simple design recognized for many years as "Standard Equipment" for Automatic Dual Drive operation—Automatic operation of 2 Speed drive—As a ratchet permitting infinite adjustment and as an automatic backstop. Furnished in a number of types.

★ **WRITE TO-DAY!**

For the new series of 6 illustrated Bulletins furnished FREE upon request, featuring our complete line of Industrial Clutches and Couplings—showing typical applications and their use in modern industrial engineering facilities.



OVERLOAD RELEASE SLIP
CENTRIFUGAL FRICTION SINGLE REVOLUTION

★ **THE HILLIARD Corporation** ★

129 WEST 4TH ST.

ELMIRA, N. Y.

KRAFT FACTORY AT CHEHALIS—A Krafts Food Co. factory, whose construction, exclusive of equipment, is expected to cost \$200,000, is scheduled for Chehalis. Plans call for construction of the Kraft plant adjacent to the Lewis-Pacific Dairy which will furnish the food manufacturers with the raw materials for its dairy products. The plant will have between 40,000 and 45,000 square feet of space, with at least 30,000 square feet on the main floor and the balance in either a basement or partial second story. The engineering department of the parent company is designing the plant, but the company expects to call a Northwest engineering firm in for consultation.

Other firms at Chehalis which plan building expenditures are Sears Roebuck Company, which plans \$125,000 worth of improvements on its store; Perry Brothers, who plan a new factory; West Coast Grocery Co. which plans a new warehouse; Severns Motor Co., which plans a \$60,000 building; Skelton Motors, which plans a new building; and W. B. Case and E. Paul Clark, Coleman Implement Co., Iver Floe, R. G. Willrich and Warren Motors, who all plan new buildings.

LEVULOSE SUGAR MILL—Construction of a \$500,000 levulose sugar mill, which will employ nearly 300 men, is in the offing for Camas, according to spokesmen of the Columbia Engineering & Supply Co. The mill, to be known as the Columbia Levulose Sugar & Refinery Co., will be located on a five-acre tract between Camas and Washougal. Jerusalem artichokes, an uncultivated plant of Clark County, will be the main source of the product. D. W. Bowes, Camas, who recently handled financing of the Columbia Flax Assn., heads officers of the corporation.

WHITE RIVER LUMBER BUILDING—White River Lumber Co., Enumclaw, is erecting a one and one-half story frame office building, costing about \$50,000 at Enumclaw.

INTERSTATE ELECTRIC TO BUY OUT PACIFIC POWER & LIGHT—Charles Baker, Walla Walla, president of the recently-formed Interstate Electric, Inc., has begun negotiations for purchase of Pacific Power & Light Co. interests in Washington and Oregon, in behalf of the association.

BOEING GETS PAN AMERICAN CONTRACT—A contract for the purchase of 20 Boeing Stratocruisers, the 67½-ton, 80-passenger "big brother" of the B-29 Superfortress and commercial version of the Boeing C-97 Army transport, has been signed by Pan American World Airways. More than \$25,000,000 are involved in the transaction. The Stratocruiser is capable of flying New York-London nonstop with a full complement of passengers, baggage, mail, and express.

LAKE UNION SHIPBUILDING FIRM CHANGES HANDS—George H. Stebbins, former general manager of the Associated Shipbuilders plant, has taken over the J. L. McLean interests in the Lake Union Drydock and Machine Works, and in connection with H. B. Jones, president of the firm, has formed a new organization, the Lake Union Drydock Company. The company will engage in the field of small boat construction, including the building of fishing boats, small tankers, barges, and scows.

GRAIN ELEVATOR EXPANSION—Expansion of the Port of Tacoma's grain elevator from 500,000 bushel capacity has started and the new elevator will be in operation by June. Cost is estimated at \$230,000.

PUMICE-BRICK INDUSTRY—A pumice-brick industry is being re-located on the former site of the Great Northern Lumber Company's dismantled mill. The factory's new maintenance shop is built on a foundation of ten mill piers after removal of 88 similar piers from the mill site. The plant will employ 15 men.

Drinking Water Is Important to Industry!

★ Drinking water aids health, brings efficiency and increases production. Provide cool, refreshing drinking water for employees' convenience. Install HAWS Drinking Water Fountains, Faucets and Electric Water Coolers NOW! . . . They're sanitary, dependable, economical and easy to install. Write for catalog.



HAWS DRINKING FAUCET CO.

1808 Harmon Street Since 1909 Berkeley 3, Calif.
Agents and Sales Representatives in All Principal Cities



**NO WOBBLE!
NO SEE-SAW!
NO TILT!**

3-Point Base Insures Even Cuts

Off-balance bandsaws, caused by uneven flooring, often account for uneven cuts. Not so, however, where the Johnson Metal Cut-off Bandsaw is used. The exclusive 3-point base provides rigid anchorage. No matter how uneven the flooring, the Johnson Bandsaw sets solid, prevents irregular cuts.

Other Important Johnson Features

1. Thinner blade reduces metal waste
2. Box type frame protects movable parts
3. Four speeds provide right speed for every metal, hard or soft
4. Hydraulic control insures even pressure throughout cut
5. Coolant attachment minimizes friction, prolongs blade life
6. Automatic shut-off after cut is completed

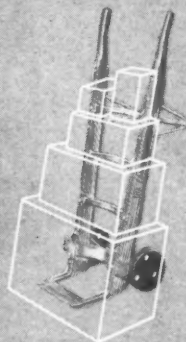
WRITE TODAY FOR FULL DETAILS

JOHNSON MANUFACTURING CORP.

5001 CHRYSLER BLDG.

NEW YORK 17, N. Y.

Load it with barrels or boxes



Curved crossbars hold heavy barrels snugly yet big boxes and bulky packages ride equally well. That's why this Fairbanks Barrel Truck is a versatile favorite in the warehouse or on the loading platform. With ease and speed it rolls out a giant work-quota, yet handles well in traffic.

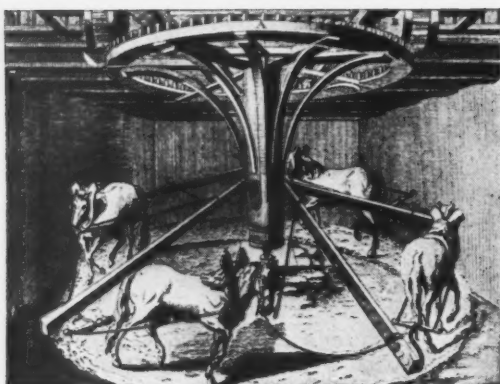
Constructed of strong steel and continuous wooden frame which acts as a shock absorber. Fairbanks Hand Trucks carry on in service that would break down many another type of truck. They maneuver simply and safely in narrow passageways and other confined spaces. Excellent balance assures smooth running.

For specifications on all types of Fairbanks Trucks write for Catalog No. 50.

THE fairbanks COMPANY

393 Lafayette St., New York 3, N. Y.
520 Atlantic Ave. 748 M&M Bldg.
Boston 10, Mass. Houston 2, Texas
15 Ferry Street Pittsburgh 22, Pa.

PLATFORM, HAND AND BOX TRUCKS



200 Years of Power Transmission Refinement... Now Speedaire!

Easy with that smile—this "machine drive" was quite up-to-date around A. D. 1750. Think of the amazing progress that has brought you the new Speedaire Fan-Cooled Worm Gear Reducers of 1946—giving you *More Horsepower for your Dollar!* The new Speedaire sets new standards of worm gear performance—provides applications of economical right-angle drives to *more of the machines you build*. Investigate Speedaire. Send today for Catalog 300—complete with charts, rating tables and dimension data.



The Cleveland Worm & Gear Company,
3269 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication

San Francisco Los Angeles
Portland Seattle Denver

Cleveland

SPEEDAIRE

FAN COOLED

Worm Gear Reduction Units



Faster Handling

OF PIPE, PLATE, STRUCTURALS

PLATE GRIPS — Safe, positive grips in a variety of sizes for handling vertical plates or upending horizontal plates and assemblies.

PIPE TONGS — Heavy duty tongs for easy handling of pipe, billets, bars, timber. Locks in open position. Picks up from floor surface.

PLATE HOOKS — Handle one or more horizontal plates. Used in sets of 2 or 4. Two styles.

RAIL TONGS — Handles large or small rail. Two sizes with 3" or 4½" jaw.

Write for Illustrated Catalog

DOWNS CRANE & HOIST CO.

MECHANICAL ENGINEERS

540 W. VERNON AVENUE
LOS ANGELES 37, CALIF.

Electric Cranes • Hand Cranes • Jib Cranes • Sheaves • Sheave Blocks
Plate Grips • Plate Hooks • Crane Trolley Hoists • Crane Wheels • Crane
End Truck Units • Jib Crane Fittings • Automatic Mechanical Load Brake
Crane Hook Blocks

THE WEST ON ITS WAY

NEW FIRMS WHICH PLAN OPERATIONS—Some firms which have recently applied for incorporation at Olympia are: Electronic Corp., Seattle, incorporated by John J. Ryan and Bathurst L. Mulligan, 103 Canadian National Dock, Seattle, with capital of \$50,000. . . . Bur-Bee Company, Walla Walla, Inc., with capital of \$100,000, incorporated by A. F. Paetel, Cameron Sherwood and James B. Craver, Walla Walla, to carry on a general merchandising business in tobacco products. . . . Craig Furniture, Inc., Tacoma, incorporated at \$100,000, by A. I. Jensen, 4106 N. 15th Street, L. L. Thompson, C. J. Camby, both of 1410 Puget Sound Bank Bldg., Tacoma. . . . K & K Coal Mining Co., Inc., Seattle, incorporated at \$150,000, by F. E. Kuhuski, J. P. Lavelle, of 1525 Boren; H. C. Kilgus, F. E. Hoberecht, H. R. Evans, 1515 Boren Avenue, Seattle. . . . Watcom Tool Corp., Bellingham, incorporated at \$50,000, by C. I. Phelps, 1204 Ellis Street; J. W. Smart, 1239 Bancroft Rd.; Harold Lant, 134 S. Garden Street, all of Bellingham. . . . Haines Oyster Co., Seattle, incorporated at \$80,000, by W. A. Waring, Pier 67; Verne Hayes, 1914 E. Lynn; Edna Baker, 109 John Street, all of Seattle. . . . Washington Furniture Manufacturing Co., Inc., Seattle, capitalized at \$500,000, by L. K. Schoenfeld, F. A. Hubbert, J. E. Hunt, 1964 Fourth Avenue S.; Melville Monheimer, 3000 Smith Tower, Seattle. . . .

WYOMING

IRON ORE DEPOSIT SURVEYED—The state geological survey recently issued shows over 8 million tons of titaniferous iron ore and limitless amounts of anorthosite in the Laramie range of southeastern Wyoming. According to the report sufficient titaniferous iron is believed available to warrant establishment of a plant for concentration and separation.

LARAMIE PLANT CHANGES HANDS—W. C. Gilman & Co., New York City engineering firm, was successful bidder for Western Public Service Company of Laramie. Price bid was \$1,351,800. No changes in management, personnel or policy are contemplated according to Gilman.

THE BEST
FRIEND
A BEARING EVER HAD



PATENTED

EDWARD D. MALTBY CO.

1718 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA
TELEPHONE RICHMOND 5285

PHOENIX OFFICE • 402 W. MADISON STREET • TELEPHONE 3-3789

WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND
SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Minneapolis-Honeywell Regulator Company announces the opening of new offices in Denver and Salt Lake City, and expansion of its existing offices in Los Angeles and Spokane.

The Denver branch in the Wilda Building, will be under direction of **George D. Maves** who has been company representative for past three years. The Denver Fire Clay Company will continue to handle sales of Honeywell's subsidiary, the Brown Instrument Company, in the Denver territory, while the **William A. Flatt Company** which has represented Honeywell in territory for past 12 years, will continue to act as wholesaler.

Eldon I. Richardson has been appointed district representative in Salt Lake City and will operate under supervision of Denver branch. Sale of Brown Instrument Company equipment in Salt Lake City will continue under supervision of Denver Fire Clay Co., while **Williams and Richardson** will handle company products as a wholesaler.

Gavin Younk has been made branch manager of the Los Angeles office which will handle complete line of all company equipment. **C. I. Peterson**, San Francisco, will supervise the office. Peterson is regional mgr. for California.

H. S. Jennings, district representative in Spokane, will handle an expanded territory in states of Washington, Idaho and Montana.

D. F. DeVine and **A. T. Challman** have been added to the Portland and San Francisco offices, respectively, as sales engineers for the company.



Alexander H. Gaal

in general sales, Cleveland, O., and represented them in Los Angeles for several years.

Stran-Steel "Quonset" type structures—packaged steel buildings—have been added to the line of the **Krafule Company**, Niles, Calif. During the first few weeks of distributorship the company sold structures totalling more than 91,000 square feet of floor space. Company manufactures clay products, bricks, ceramics and allied products and has added the distributorship in line with its postwar plan to become identified with the building materials field more widely.

William H. Brown has been appointed representative of the **H. K. Porter Co., Inc.**, in the San Francisco area, with offices at 926 Monadnock Bldg. The Porter Company and subsidiaries, including **Mt. Vernon Freight Car Co.**, **Quinby Pump Co.**, and **J. P. Devine Mfg. Co.**, are manufacturers of processing equipment for food, chemical and refining industries. Brown recently completed a two-year tour of duty with the Army Air Corps, serving in India.

W. P. Stratton remains as general sales manager of **Gladden Products Corp.**, Los Angeles, which recently changed its name from **Kinner Motors, Inc.**, while **S. Kenneth Weiser**, service mgr. for Kinner Motors, will assume duties as assistant sales manager and service manager as well. "Bill" Stratton who has been connected in various sales and engineering capacities with the **Bassick and Godfrey Rueger** companies, manufacturers representatives, is building a distributor organization to handle Gladden's line of small horsepower industrial engines. Weiser has had broad experience in aircraft, diesel and gasoline engine fields.



Howard H. Adams

Preston Faller, Seattle materials handling engineer, has added a Spokane office and made several personnel changes in line with postwar program. **Mark F. Hayfield** will head the new office at East 41 Gray Avenue, Spokane, which will serve Faller accounts in the Inland Empire, Idaho and Montana. **Jack A. Newson**, Canadian Army veteran, has returned to Vancouver where he will resume post as supervisor of sales with **National Machinery Company** for Faller. **Robert H. Dodd**, former Army Air Corps officer, has established offices at 1220 S.W. Morrison, Portland, as headquarters for sales for Oregon and the lower Columbia Valley. **W. L. Lind** has been named assistant sales engineer for **Puget Sound and Alaska territory** working with Faller. Expansion of the **Clark Tractor Service Company** in Seattle will provide a general parts and supply depot for all four offices. All branches will represent **Clark Tractor**, **Silent Hoist and Crane**, **Electric Wheel Company** and **Shepard-Niles Crane and Hoist Co.**

General Electric changes and appointments on the Pacific Coast include those of **Marion S. Barnes** as assistant manager of the Central station division of the apparatus department's San Francisco office—Barnes has been with GE for over 30 years and is an active member of both the Pacific Coast Electrical Association and American Institute of Electrical Engineers; **J. O. Dillingham** as manager of the Pacific construction materials sales district, with headquarters in San Francisco; and division of the territory of **A. L. Jones**, G.E.'s commercial vice president in Denver who recently retired, between **A. S. Moody**, commercial v.p., Portland, who takes on additional trading area of Butte, Montana, and immediate territory; **R. M. Alvord**, commercial v.p., San Francisco, who adds the Salt Lake City, Utah trading area; and **W. B. Clayton**, commercial v.p., Dallas, Texas, who has been assigned the Denver area.

W. L. Wilkinson, formerly director of procurement in San Diego plant, and previously occupying a similar position at Des Moines, was appointed sales manager of **Solar Aircraft Company**, San Diego, as the first step in the program of handling the diversified peacetime business of the Company. The company plans a chemical and petroleum department of the sales division. **R. A. Fletcher** has been named to take care of Specialty Items.

Stewart S. Cort was recently appointed manager of sheet and tin plate sales of the **Bethlehem Pacific Coast Steel Corporation**. Mr. Cort joined Bethlehem's commercial research department in 1937 and served as manager of scheduling for Bethlehem's West Coast mills during the war. For the past year he has been in the sheet and tin plate sales department at Bethlehem, Penna. He becomes Bethlehem's first manager on the West Coast for this division of sales.



Stewart S. Cort

Ernest E. Drescher has joined electrical sales staff of **Western Fiberglas Supply Ltd.** Drescher, a native San Franciscan, was educated at the University of California. He is a member of the Electrical Maintenance Engineers' Association and an Associate Member of American Institute of Electrical Engineers. He comes to Western Fiberglas from San Francisco Naval shipyard, where he was supervising engineer in the design section.

Harold C. Brooks, formerly vice president of **Hunt Foods, Inc.**, 3055 Wilshire Blvd., Los Angeles 5, has severed his connections with the firm and March 1 establishes a food brokerage company with headquarters in Los Angeles. The business will be operated on a national basis and Mr. Brooks plans to develop sales in Southern California and throughout the country for the products he will represent.

Worthington, Roth, Carter, Cook and other pumps will be handled by Portland's newest distributor of nationally known pumps—**The Pump, Pipe & Power Co.**, 1624 Southeast Grand Avenue, Portland. Principals in the firm are: **Clinton C. Warren**, registered engineer and manager; **Cecil Garbe**, shop engineer; **Orville B. "Pete" Winkle**, purchasing agent; **Jimmie Buttice**, assembly; and **Caroline E. Goff**, office manager. All were formerly with **Pacific Pumping Co.** The firm will supply pumps for industrial, irrigation, water systems and deep-well turbine purposes. It will also offer stock parts and repair service.



E. A. Daniels



E. O. Williams

E. A. "Ernie" Daniels and **E. O. "Ed" Williams** have been elected vice presidents of **Victor Equipment Company**, 844-54 Folsom Street, San Francisco. "Ernie," formerly general sales manager, is now vice president in charge of sales, and "Ed," formerly district manager with offices in Los Angeles, becomes vice president and manager of Southern California District. Both men have been with the company more than 16 years.

YOURS FOR THE ASKING

1919

Synchronous Motors—A recently issued 4-page folder, No. FF-11 illustrates and describes eight of the economies and operating advantages gained by use of synchronous motors engineering to large, constant-speed industrial applications. Illustrations include shots of synchronous motors in Western plant applications and examples of motors direct-connected to various types of drives. *Electric Machinery Mfg. Company, Minneapolis 13, Minn.*

1920

Information Labeling Program—Society of the Plastics Industry has launched a nationwide move by member manufacturers to aid consumers in obtaining greatest possible satisfaction from plastics purchases by undertaking an informative labeling program endorsed by leading retail executives which will tell the buyer just what qualities his purchase has and how the article should be used to derive best results from it. Booklet available. *Society of the Plastics Industry, Inc., New York 17, N.Y.*

1921

New Arc Welding Accessories Catalog—Aircor welding accessories, with up-to-date price list, are described in new 12-page booklet which illustrates and describes the complete line of accessories for all types of arc welding machines and operations. Types of equipment include: electrode holders, graphite electrodes, welding cable, cable connectors and cable lugs, welding helmets, goggles, face shields, headgear, aprons, gloves and sleeves, and heliwelding equipment for welding magnesium. Catalog No. 130. *Air Reduction, New York 17, N.Y.*, or nearest Aircor office.

1922

Spray Nozzles—Spray Nozzles for water cooling, air conditioning and for general industrial uses are illustrated in Bulletin N-616, now available. Subjects covered include: Recooling water by spraying; nozzles and fittings for spray ponds; construction details of spray ponds; nozzles for cooling towers; typical Yarway spray ponds; nozzles for air-conditioning and industrial use; typical installations of Yarway industrial nozzles; capacities of spray nozzles; dimensions of nozzles and spray pond fittings. *Yarnall-Waring Company, Philadelphia 18, Pa.*

1923

Thredstamp—Blanking, drawing, threading, serrating and swaging may be done in one operation when using the Thredstamp process, according to a bulletin available and describing the Thredstamp. Precision threading and stamping are combined in the one operation, and small or large parts can be made of steel, aluminum or brass, accordingly. *Tubing Seal-Cap, Inc., Los Angeles 55, Calif.*

1924

Arc Welding Electrodes—A new catalog which provides a guide to the proper selection of Arc Welding electrodes for any specific job is available. It supplies complete data on the proper electrodes to be used for all types of work on a wide variety of base metals and describes the approved welding procedures for each application. Can be used on mild steel, alloy steels, low alloy and high tensile steel and stainless steels. Additional sections devoted to their use for non-ferrous metals such as aluminum bronze, aluminum and manganese bronze. Chemical analyses, specifications and other engineering data are supplied. *Wilson Welder & Metals Co., New York 17, N.Y.*, or nearest Wilson distributor.

1925

Industrial Truck Service Lift—For use in every plant using industrial power trucks, the service lift quickly lifts the trucks up where they may be serviced from underneath. Features of the Globe Lift are illustrated, together with a layout. The lift has 10,000 lbs. capacity. *Globe Hoist Company, Des Moines 6, Iowa.*

1926

Stupakoff Ceramics—The complete line of products for use in the radio and electrical industries, including ceramics, metallized ceramics, Kovar (an alloy for sealing metal to glass) and Kovar-Glass Hermetic Seals are described in a new bulletin. It illustrates Stupakoff Padder and Trimmer bases which combine mechanical strength and electrical stability with precise dimensional control. Examples of Kovar Glass-Metal hermetic seals are illustrated, as well as resistor ceramics, pressed parts, strain and spreader insulators, ceramic rod and tubing and metallized ceramics. *Stupakoff Ceramic & Mfg. Co., Latrobe, Pa.*

1927

Underwater or Surface Cutting—A new bulletin on Ellpro Cutting Electrodes for use for underwater or surface cutting is released. May be used in harbor clearance, salvage and certain construction operations. Can be used by simply adding a tank of oxygen to any portable welding set. Cut at depths up to 280 feet and more. Will cut cast iron and other materials at surface work. Cutting speed much more rapid than possible by previous conventional methods. Complete details and specifications with fully illustrated description on how to use the electrodes are contained in the bulletin. *Ellwood Products Corp., Ellwood City, Penna.*

1928

Power Hammer for Blacksmith Shops—"The Mechanical Blacksmith's Helper" is described in a bulletin about the McKiernan-Terry Blacker Power Hammer. Illustrations show how the direct-gear electric-power-driven hammer enables one smith to handle any hand-forging operation without helpers. Hammer's design and construction, with its specifications, supplemented by a concise tabulated list of the advantages and savings claimed for it, are fully illustrated. Instructions for installation and lubrication are included. Bulletin No. 56. *McKiernan-Terry Corporation, New York 7, N.Y.*

1929

Thermocouple Data Book and Catalog—A new edition containing 32 pages and designated Bulletin S2-6, gives information on selection of proper thermocouples and carries installation aids. Describes and lists prices and recommendations on thermocouples, thermocouple wire, lead wire, heads, connectors, plug and socket assemblies, insulators and protecting tubes. *Wheelco Instruments Company, Chicago 7, Ill.*

1930

Vapor Cleaning Unit—The new Oakite-Vapor heavy duty cleaning unit is described in a folder which gives outstanding features, operational data specifications and other important information. The quality-engineered, multiple duty steam cleaning unit, is self-contained, with down-draft flame, oil fired, enclosed coiltype steam generator that delivers hot vaporized cleaning solutions under selective pressures up to 200 lbs. for speedier, easier removal of grease, grit, grime, paint and other deposits from surfaces. Wide range of fuel oils may be used to operate the unit. *Oakite Products, Inc., West Coast Division Office, Los Angeles 12, Calif.*

1931

An Engineer Looks at ILG—What an engineer saw as he toured ILG plant is pictured in a book just published. Construction and testing views, pictures of special features, are included in the section on Centrifugal fans. Propeller fans, also illustrated as is the Research Laboratory. Engineers and others in business of specifying, designing, purchasing, or installing ventilating or heating systems should be especially interested. *ILG Electric Ventilating Company, Chicago 41, Ill.*

1932

Abart Bulletin on Gears—A new bulletin, well illustrated, which contains engineering data in brief copy, and deals with spur, bevel, worms, helical, internal, worm wheels, spiral, sprockets and racks, precision cut of any gear material, has been released. Abart cuts gears only to customers' specifications. Contains illustrations and summary of the speed reducers as well. *Abart Gear & Machine Co., Chicago 50, Ill.*

1933

Benton and Franklin Counties as Power Markets—The Bonneville Power Administration has just completed a survey "The Economic Base for Power Markets in Benton and Franklin Counties, Wash." which deals with full development of the power, navigation and irrigation potentialities of the Columbia river as the key to future growth of the area lying in the geographical center of the vast Columbia basin. Six pages of photographs and two maps in colors. *Division of Industrial and Resources Development, Bonneville Power Administration, Portland, Ore.*

1934

Circular Magnets—EC&M circular magnets for odd job lifting applications are described in Bulletin No. 904 just published. The magnets are described in complete detail, together with illustrations of the magnets at work on the job. Use of a magnet where material is too hot, too heavy or too slow to handle by hand, is illustrated. *The Electric Controller & Mfg. Co., Cleveland 4, Ohio.*

1935

Beautiful Floors—"The Easy Way"—General Floorcraft, Inc., manufacturer of industrial and household floor maintenance machines, has issued a new catalog which describes machines made by the company. Profuse with illustrations the catalog illustrates and describes in detail specifications of all standard machines for industrial, institutional, bowling alley, rug cleaning and household use, attachments and accessories. Numerous views of General's modern plant with interesting operation close-ups are included. *General Floorcraft, Inc., New York 13, N.Y.*

1936

Spherical Bearings—A new catalog about Heim Uniball spherical bearings and spherical bearing rod ends is now available to engineers and machine designers. Known as Heim Catalog No. 10, it contains complete engineering details and specifications together with formulas and data on applications for engine controls, marine usage, aircraft, road building machines and oil field equipment. *Edward D. Matthy Co., Los Angeles 15, Calif.*

1937

Batteries for Industrial Trucks and Tractors—Storage batteries for industrial truck and tractor service are featured in Catalog 100 published by Gould. Kathanode grid and other elements of the battery are illustrated, while Kathanode Glassklad construction is emphasized. Technical data shows characteristic discharge curves of these batteries and covers installation dimensions for both steel and wood trays. Sections on "Care and Maintenance of Your Battery" and "The Theory of the Lead Acid Storage Battery." *Gould Storage Battery Corp., Depew, N.Y.*

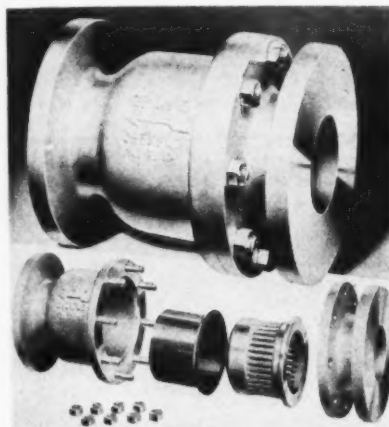
THE SHOWCASE

370

Standardized Cylinder—A cylinder suitable for operation by air, oil or water, which lends itself to almost universal mounting applications, is announced. The completely standardized cylinder is manufactured in quantities, and is available in an assortment of diameters, and stroke lengths that meet practically all requirements. Descriptive material in Bulletin 453. *Engineering Products Co., Los Angeles, Calif.*

371

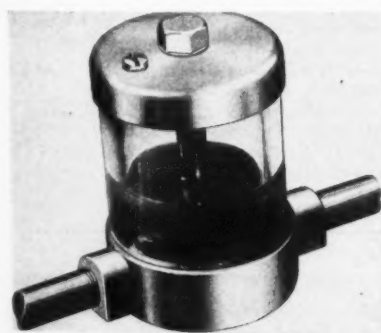
Grove Check Valve—No metallic moving parts are used in the new Grove Chexflo Valve. Operation is effected by a synthetic rubber tube



stretched over a slotted, cup-shaped metal core, which expands to open and contracts to close. Pressure impulses, shock or water hammer through the flow line are obviated by expansible tube. Uniform and constant spring rate in flexible tube avoids inertia being set up to cause operation beyond flow requirements. Flexing adds life to rubber. Bulletin 610 describes operation. *Grove Regulator Company, Oakland 8, Calif.*

372

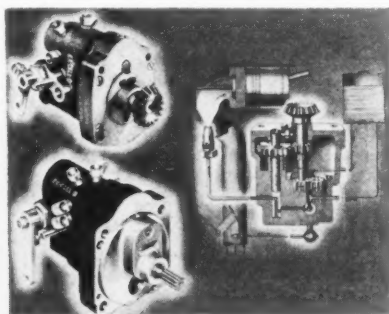
Lubricator for Air Tools—Specially designed for automatic lubrication of a wide variety of pneumatic equipment, features of the CCA Lube include a full view, non-breakable transparent plastic window with "O" rings for top and bottom seals, with quantity of oil in lubricator visible at all times. Regulation of lubricant



accomplished by needle valve located on air outlet side. Regulator is easily adjustable to meet varying equipment requirements. Filler cap and adjusting aperture located directly above regulator valve. No oil flooding or oil starvation or freezing of pneumatic equipment. Available in 1/4" and 3/8" standard pipe line sizes. *CCA Products Engineering, Glendale, Calif.*

373

Gasoline Injection System—This new system replaces the carburetor generally used on small aircraft engines. It is designed to meter mechanically the correct quantity of gasoline to various engine cylinders, providing a positive control of the fuel-air mixture for best combustion. Eliminates accidents caused by carburetor icing; reduces gasoline consumption; equally distrib-



utes fuel to all cylinders; increases engine power and plane speed, and gives smoother engine performance and better idling. Descriptive circular available. *Ex-Cell-O Corporation, Fuel Injection Division, Detroit 6, Mich.*

374

DoAll Lifetime Gage Blocks—A new gage block which greatly extends the use and application of blocks, whose wearing qualities are tremendously increased, and which the average person can use without difficulty has been introduced. The life of the new block is said to be 60 times that of steel blocks and 20 times the life of chrome plated blocks. It is made of a wear



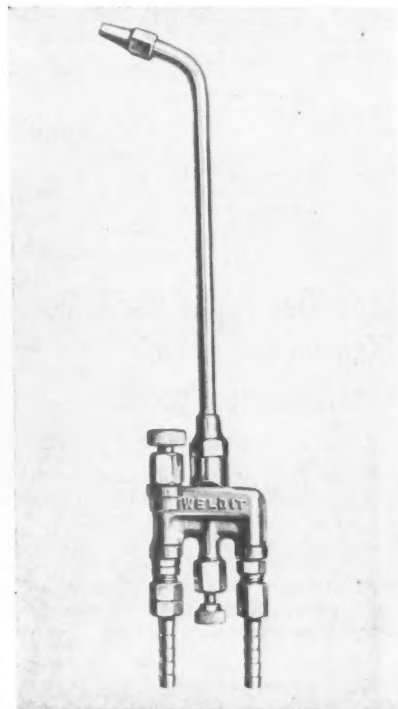
resistant alloy having expansion characteristics similar to steel. Can be used under any temperature conditions whether in shop, tool room or inspection department. Accurate for dimension, flatness and parallelism. Will remain flat under severe temperature changes and will retain accuracies at temperatures of 120 degrees below zero to 500 degrees above zero. Unusual wringing qualities. Corrosion and abrasion resistant. *The DoAll Company, Minneapolis Division, Minneapolis 4, Minn.*

375

Decarbonizer and Degreasing Material Announced—Kelite Products, Inc., has announced a new decarbonizer and degreasing material, packaged in an open topped 5 gallon can, with or without parts basket, to simplify fleet maintenance problems and reduce lay-up time. Effective for removal of grease, dyes, gums and carbon deposits normally difficult to remove. *Kelite Products, Inc., Los Angeles 1, Calif.*

376

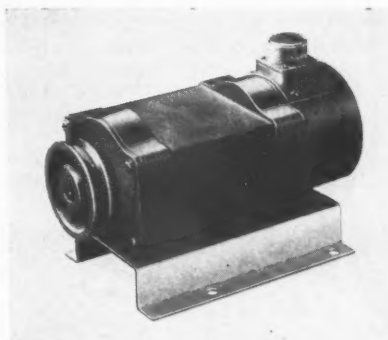
Light-Weight Welding Torch—A new light-weight torch for welding, Weldit Model UN-45, which can be effectively used with natural or manufactured gas, acetylene, butane, or other low temperature gas, combined with oxygen, has



been announced. Is especially adapted to silver brazing, jeweler's work, aluminum welding, lead burning, aircraft production, and wherever a small, light-weight torch is required. Made of brass, the base casting is brass and copper. Employable tips are from 0 to 6 inclusive. Overall length is 8 1/2 inches. Weight complete 7 oz. Listed as standard by Underwriters' Laboratories, Inc. *Weldit, Inc., Detroit 26, Mich.*

377

Light-Weight Generator—A generator weighing but one-half as much as formerly available equipment but capable of supplying up to 1200 watts in continuous duty is announced. Originally developed as an airborne unit for remote radar stations, the especially designed EEMCO unit has a maximum weight of 20 to 25 pounds, depending upon rating. Available in 500-, 600-,



and 1200-watt capacities, at 32 and 120 volts. 50 degree temperature rise, generator is totally enclosed, glass-insulated type, and is equipped with lifetime-lubricated ball bearings. *Electrical Engineering & Mfg. Corp., Los Angeles 16, Cal.* (Continued on Page 82)

Rubber Surface Coating—Vulcabond, a new rubber base surface coating, with wide application in industrial and marine use, is developed. This protective coating has an oil resistant, synthetic rubber and synthetic plastic base. Steam, hot and cold water, salt, alkaline and acid solutions have very little effect on the new material. Adheres to metal, wood, glass, plastic and fibre of all kinds. Metal coated with Vulcabond may be flexed 180 degrees without cracking the coating or breaking its adhesions. Of value for protective coating where electrolytic corrosion is a factor as on buried pipe lines. Satisfactory on aircraft for which it was developed. Weighs 7.4 lbs. per gallon and covers 400 sq. ft. per gallon on smooth surface. Dries in 30 minutes. Available in pints, quarts and gallon cans. *Bray Corp., Pasadena 8, Calif.*

Apply Our Expert Electronic "Know-How" to Your Manufacturing Needs

Improve your operating efficiency, regardless of what you manufacture, through the infallibility of electronic installations. With their greater precision, speed, and accuracy you can materially aid your production.

Electronic Research Associates offer you:

1. Trained specialists to help you effect the transition from war work to peace time production.
2. Technical experts who will recognize immediately the phase of electronics most beneficial to your interests.
3. Many techniques developed to meet military requirements that will have practical applications in your commercial enterprise.
4. Comprehensive information on the latest electronic developments.

To discuss the practical relationship between current electronic trends and your manufacturing set-up, write or telephone

Electronic Research Associates

Box 333-305 Linden Avenue

South San Francisco, California

Telephone: South San Francisco 326

Albert Ramond & Associates, Inc.

Serving American Industry Since 1916

INDUSTRIAL ENGINEERS

Cost Reduction • Improved Wages
Production Management

Chrysler Bldg., New York 17 • Tribune Tower, Chicago 11
Russ Bldg., San Francisco 4 • 200 Bay Street, Toronto 1

Yessir!

I'm Interested in Anything New That Will Help Me Do a BETTER JOB.

WESTERN INDUSTRY
503 Market Street
San Francisco

Please send me information on the following items:

Name.....

Title.....

Company.....

Address.....

INDEX TO ADVERTISERS THIS ISSUE

	Page		Page
Acme Steel Company.....	75	Lea Manufacturing Co.....	49
Aladdin Heating Company.....	72	Maas, A. R. Chemical Co.....	61
American Rubber Mfg. Co.....	13	Maltby, Edward D., Co.....	78
Anaconda Copper Mining Co.....	11	Marine Engineering & Supply Co.....	52
Anaconda Wire & Cable Co.....	11	Marwood Limited.....	56
Bank of America.....	12	McCarty Company, The.....	28
Brooks Equipment Co.....	60	Moore Business Forms, Inc.....	22
Caine Steel Co.....	17	Newcomb-Swital & Associates.....	74
California Barrel Co., Ltd.....	3rd Cover	Oakite Products, Inc.....	72
California Shipbuilders Corp.....	29	Oliver Tire & Rubber Co.....	70
California Spring Co., Inc.....	54	Pacific Coast Acousti-Celotex Distributors.....	26
Clark Tractor Division.....		Paraffine Companies, Inc., The.....	71
Clark Equipment Co.....	47	Pioneer Rubber Mills.....	50
Cleveland Cap Screw Co.....	25	Rapids-Standard Company.....	74
Cleveland Worm & Gear Co.....	78	Raymond, Albert, & Asso., Inc.....	82
Coldwell, Banker & Co.....	72	Reconstruction Finance Corp.....	30
Commercial Iron Works.....	55	Redington, F. B., Co.....	62
Consolidated Steel Co.....	31	Republic Supply Company of Calif.....	58
Conveyor Company.....	53	Revere Copper & Brass, Inc.....	20
Crocker First Nat'l Bank.....	64	Richfield Oil Company.....	10
De Young Bros. Machinery Co.....	76	Ridge Tool Company.....	73
Dodge Mfg. Corporation.....	24	Roebling, John A., & Sons.....	59
Downs Crane & Hoist Co.....	78	Sharpe Mfg. Co.....	76
Dravo Corporation.....	15	Shell Oil Company.....	23
Electronic Research Associates.....	82	Signode Steel Strapping Co.....	3
Engineering Products Co.....	63	Smoot-Holman Company.....	66
F. A. B. Mfg. Co.....	67	Standard Oil Company.....	32
Fairbanks Company.....	77	Stauffer Chemical Co.....	65
Fruehauf Trailer Company.....	27	Stephens-Adamson Mfg. Co.....	4th Cover
Garratt-Callahan Co. of Calif.....	74	Stuart Oxygen Company.....	67
Gibson, William D., Company.....	44	Sullivan Machinery Company.....	21
Gould Storage Battery Corp.....	4	Thaler Pipe & Supply Company.....	62
Grinnell Company, Inc.....	19	Tide Water Assoc. Oil Co.....	14
Harnischfeger Corp.....	18	Victor Equipment Co.....	2nd Cover
Haws Drinking Faucet Company.....	77	War Assets Corporation.....	57
Hilliard Corp., The.....	76	Warman Steel Casting Co.....	51
Independent Pneumatic Tool Co.....	8 & 9	Western Asbestos Company.....	16
Isaacson Iron Works.....	72	Western Gear Works.....	43
Johnson Mfg. Corp.....	77	Wrigley, Jr., William, Company.....	64
Johnston, A. P., Company.....	82		

Johnston Stainless Welding Rods

DISTRIBUTED BY

ANDERSON EQUIPMENT CO.
644 E. Florence Avenue, Los Angeles 1

ARIZONA WELDING EQUIPMENT CO.
230 South Central Avenue, Phoenix, Arizona

J. E. HAZELTINE & CO.
Second Avenue and Ash Street
Portland 4, Oregon
510 First Avenue, South
Seattle 4, Washington

RENFRO PRODUCTS CO.
1266 South Boyle Avenue, Los Angeles 23

WELDING SERVICE SALES, INC.
926 Howard Street, San Francisco 1

WHEREVER A PRODUCT GOES, IT GOES IN A CONTAINER



Built for All Roads

STAGECOACH transportation has lost the race, but to a crate of lettuce or a lug of peaches the road to market is still a trip for the hardy.

Across the county or around the world, wherever your products go they go in a container. Building the *right* container for every commodity, from apples to airplane parts, and building of wood has been Cabco's specialized job since 1883. Its supervision extends from lumber mill to finished product.

No matter how rough the ride, there's a Cabco engineer trained to outsmart it. Why not put your special container requirements up to him? No obligation will be implied.

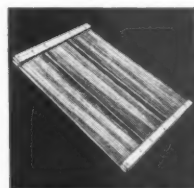
CALIFORNIA BARREL CO., LTD.

Since 1883

100 Bush Street, San Francisco 4, California
Offices: 2581 East Eighth Street, Los Angeles 23, California
501 Dooley Building, Salt Lake City 1, Utah
Plants: Arcata, San Francisco and Los Angeles, California

CABCO CONTAINERS

Designed to Fit...Engineered to Protect



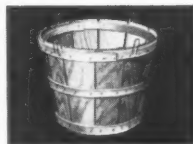
SLICED

WITH THE GRAIN

Cabco unitized covers make use of the lumber's grain fibres. They're sliced for greater strength, lighter weight, more flexibility. They look better when your product goes to market, but cost no more.

ENGINEERING COUNTS HERE, TOO

Tub baskets for potatoes, sprouts, peas and other vegetables share in the advantages of more than 60 years of container engineering.



Exclusive Sales Agents

DUFF-MARION & CO.

Distributors of sawn shook for all fruit and vegetable containers

100 Bush Street, San Francisco 4, California
2581 East Eighth Street, Los Angeles 23, California

HOW TO LOAD AND TRIM CARS

Right Up To The Door

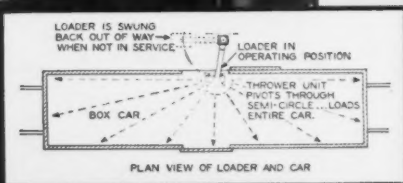
WITHOUT ENTERING THE CAR

S-A SWIVELOADER

Does the Trick

It's fast . . . it's clean . . . it cuts the cost of loading and trimming . . . it frees men from the druggery and hazard of working inside dusty cars. These are advantages of the S-A SWIVELOADER that recommend its use in *your* plant.

With this modern loader, all you do is swing the unit through the door and swivel the centrifugal thrower toward one end of the car. Material is thrown to the farthest corners. As the car fills, the trajectory of material is adjusted as required. One man handles placement and operation of the SWIVELOADER —and once the loader is started, operator is freed for other duties until adjustment is needed. It handles material up to two inches in particle size. Write for SWIVELOADER Bulletin No. 1044.



Need Conveyors?
S-A
Has the Answer

Here is an example of S-A Engineered Handling —an S-A Belt Conveyor carrying material from waterfront hopper up on incline to storage.



